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Conjecture on Reorganisation

ALTHOUGH by the time we went to press the White Paper on railway reorganisation had not made its long-awaited appearance, the daily press has been guessing at some of the proposals which it may contain. It is not surprising that, lacking authoritative basis, some of this speculation should have seized on less momentous possibilities such as the repainting of locomotives and coaches in regional colours. The *Sunday Express*, it is true, forecasts that competition between the regions "will be back again this summer," and that the plan calls for six Regional Managers and that these will have power to fix their own freight charges within the general policy of the British Transport Commission, order their own equipment, and make key decisions on management matters. This prediction will seem less illuminating to those who are aware that these Regional Managers have been in office since the interim reorganisation of last September which abolished the Railway Executive and conceded more power to the then Chief Regional Officers. The scheme, which the Commission handed to the Minister of Transport & Civil Aviation in the middle of April, is known to be ready for publication, but it seems hardly possible for its provisions

to come into operation before the beginning of November at the earliest. It must have Parliamentary approval, but the present congested programme of business before the House makes it unlikely that there will be an opportunity to debate it before the summer recess. The Government, it is understood, considers that a debate should take place as soon as possible after publication of the White Paper, lest a delay of months should cause the chief proposals of the scheme to be forgotten or clouded by criticism based on misconception. After the debate the Government intends to publish in its final form the Statutory Order giving effect to the scheme as embodied in draft form in the White Paper. This too will have to be discussed and approved by both Houses.

British Transport Commission's Report

THE British Transport Commission does not enjoy a reputation for speed in the production of its annual report. Allowing for the greater magnitude of the undertaking and the complexities of its formative years, its record is in strange contrast to that of the former main-line railway companies which had to deal more directly with their proprietors and were liable to more direct criticism at annual meetings. This year, apparently, there is to be a long delay in the publication of the report for 1953. The Minister of Transport stated in the House of Commons on June 30 that it was "hoped to send the report to the printers next month." That may mean late summer, or early autumn, before the document is public. The reason given for the delay, "the pre-occupation of its small headquarters staff with important matters arising out of the Transport Act, 1953, including preparation of the railways' re-organisation scheme," hardly justifies so protracted a period for the preparation of the document. One can only hope that when it finally emerges from the toils which, no doubt, have surrounded it, the wait will prove to have been well worth while.

Markets in Brazil

OPPORTUNITIES for re-establishing markets in Brazil have recently opened for British exporters with the first, limited, release of sterling by the Bank of Brazil. These releases, amounting so far to £600,000 have been made under a system of exchange auctions, exchange certificates being issued in five categories. Premiums paid by importers ranged from 71 cruzeiros for the first category, which includes the most essential imports, to over 400 cruzeiros for the luxury goods category. The premium for the third category, which includes the bulk of railway materials, averaged some 180 cruzeiros. The premiums are in addition to the official exchange rate of 51·4 cruzeiros to the pound, and give some indication of the eagerness of Brazilian importers to buy British goods, while, at the same time, giving the effect of a heavy import duty. Further sterling auctions are expected to follow. That there is every scope for Anglo-Brazilian trade was claimed recently by Sir Geoffrey Thompson, H.M. Ambassador to Brazil, who cited the recent Metropolitan-Vickers Electrical Co. Ltd. contract for electric stock as an example of the energy, efficiency, and patience needed on the part of manufacturers, allied with official support, if this market is to be won.

The Effects of Example

THE recent unofficial strike on Rhodesia Railways, led by a handful of Europeans, provides an example of irresponsibility where adult behaviour is particularly necessary. The Rhodesian Government, about to introduce legislation to allow Africans facilities for collective bargaining, had to deal summarily with a situation which never should have arisen. By not accepting the twelve-months' award already agreed by the Railway Workers' Union and the administration, a small group broke down the whole basis of industrial conciliation. A situation developed in which, to avoid the unemployment of thousands of Africans which would have resulted from even a brief hold-up, a state of emergency was proclaimed. Although

most of the blame may be placed on the ringleaders of the Rhodesian strike, recent examples set by some trade unionists in this country have not been such as might have been expected from the birthplace of the trade union movement. The effect on under-developed populations of revolt against their own arbitration organisations by members of some of the oldest trades unions is bound to be adverse, and it is to be hoped that British labour will constantly bear in mind the fact that its actions are under interested observation by co-workers all over the world.

Overseas Railway Traffics

SOUTH AFRICAN RAILWAYS & HARBOURS railway receipts remained fairly constant during the latter part of May and early June, being £2,314,851 for the week ended May 15 and £2,223,100 for the week ended June 5. This steadiness is in contrast to the previous year, when the figures were £1,912,188 and £1,772,331, respectively. Each of the four weeks exceeded the totals of the corresponding periods last year by a comfortable margin, and at June 5 the aggregate figures for the year stood at £21,395,043 compared with £18,494,361 in 1953. Harbours and airways also showed marked increases over the previous year. Paraguay Central Railway receipts in June averaged considerably more than in June of last year. They were G924,616 for the week ended June 4, rose to G1,059,995 for the succeeding week, fell sharply to G818,236—the only week to show a decrease on the previous year—and rose to G1,020,119 for the week ended June 25. The average for the same four weeks of last year was G843,797. Taltal receipts for April were pesos 5,582,000, an increase of pesos 3,529,000 compared with 1953, and in May were pesos 5,541,000, an increase of pesos 2,939,000 over May last year. Aggregate receipts to the end of May were pesos 45,578,000, or pesos 15,793,000 more than for the corresponding 11 months of the previous year.

London Transport's Twenty-One Years

TO mark the twenty-first anniversary on July 1 of the establishment of London Transport, Mr. John Cliff, Deputy Chairman, London Transport Executive, laid a wreath on the memorial to Lord Ashfield at the Executive's headquarters on behalf of and in the presence of Sir John Elliot, Chairman, and Members of the Executive. The tribute was both affectionate and symbolic. Though the London Passenger Transport Board, over which Lord Ashfield presided for 15 years, did not come into being until 1933, its foundation was laid by him many years before when as Mr. (later Sir) Albert Stanley he came from America to direct the Underground group, whose achievement of integration between its constituent company undertakings opened the way to subsequent co-ordination of all road passenger services and underground railways in London. To Lord Latham, his successor, fell the task in 1948 of presiding over the newly-nationalised London Transport, a duty which he ably carried out during five years of changing conditions. The chairmanship passed last year to Sir John Elliot who has brought to it long familiarity with handling mass transportation problems gained on the Southern Railway, and administrative ability which made him Chairman of the Railway Executive. The future of the greatest urban transport system in the world, with its 14,000 vehicles and its 12,000,000 passengers a day, can be in no better keeping.

The "Cornish Riviera Express"

ON July 1 the "Cornish Riviera Express" celebrated its 50th birthday. It was the first train to run regularly for more than 200 miles non-stop, a record which it maintained for over 20 years, long after the original distance of 246 miles between Paddington and Plymouth via Bristol had been reduced to 226 by the opening of the Westbury route. The special non-stop run made in 1903 from Paddington to Plymouth when the then Prince and Princess of Wales journeyed to Cornwall to open the first trans-

atlantic wireless station directed the attention of the Great Western authorities to the possibility of running a regular non-stop service. The name "Riviera Express" was selected by Mr. (later Sir) James Inglis, General Manager of the Great Western Railway, as the result of a competition in our associated monthly *The Railway Magazine*. The word "Cornish" was soon added and for some time the train was called the "Cornish Riviera Limited" in view of its limited formation. After two years the train, hitherto a summer service only, began to run throughout the year. By 1927, a 4-hr. timing between Paddington and Plymouth was introduced. The present summer schedule allows 4½ hr. down and 4 hr. 25 min. up.

Electric Trains from Brussels to Ostend

THE completion of another stage in the electrification of the Belgian National Railways was celebrated on June 26, when a special train hauled by a Bo-Bo locomotive conveyed members of the Government and the railways from Brussels to Ghent and Ostend. The Brussels-Ghent section was inaugurated some four months ago. Monsieur G. Claeys, President of the Belgian National Railways, spoke at Ostend of the great efforts which the Belgian National Railways were making to modernise the system, and announced that when all traffic was electrically worked between Brussels and Ostend by October, direct trains every hour would cover the 76 miles in 75 minutes. The railways intended to intensify their services, said Monsieur Anseele, Minister of Communications, though there were serious problems to overcome, but he hoped for an early electrification of the lines leading to the Dutch border in the interests of improving international railway travel. Some 180 route miles of the Belgian National Railways are now electrified at 3,000-V. d.c., including also the lines radiating from Brussels to Antwerp and Charleroi.

Road Vehicle Trailers by Rail

INTEREST in road-rail trailers has tended to obscure the fact that the first trailer-on-flat wagon service began in the U.S.A. in 1926, and similar facilities were available in France from 1934. Postwar progress has been particularly marked in North America, though this traffic has grown steadily in France and services have been started in South Africa. Activities in these and other countries are reviewed elsewhere in this issue. Trailer-on-flat-wagon services can be divided into two main categories: those operated by railways with their own vehicles or those of a subsidiary company, and those open to other road vehicles. The former is proving particularly valuable in North America in providing a rapid door-to-door service for smalls traffic. Experience shows that high-speed overnight services are essential to compete with throughout road hauls. In Europe, further development of road-rail trailer services must be dependent on the attraction of new traffic to the railways and not on the mere replacement of existing container services.

Rail Wear on Curves

CURRENT experience in the United States, after the extensive, and on some railways complete, substitution of diesel-electric for steam power, is that the change is tending to cause a more rapid wear than previously of the outer rail on curves. Even on some of the smaller railways, such as the completely dieselised Chicago, Indianapolis & Louisville, new 115 lb. per yd. rails laid in curves of 2 deg. (40 chains) radius or less show considerably greater wear from almost immediately after installation than they did with the previous steam traction, and in an increasing ratio on the sharper curves over which speed is restricted. The reasons chiefly assigned for this increased wear are the lower centre of gravity of the diesels and the small diameter of their driving wheels—usually 42 in.—also the fact that the load carried by all the axles of a diesel is usually about equal. This means that the leading axle of a diesel is carrying a load not far short of the maximum permissible, whereas the more lightly loaded axles of the steam loco-

motive's leading bogie or truck lead more gently and flexibly to the heavier loads imposed on the driving axles. There is a tendency also for traction motors of both diesel-electric and straight electric locomotives to accentuate the effect of centrifugal force in pressing the wheel flanges against the outer rail on sharp curves. The only remedy appears to be the more extensive use of rail and flange lubricators.

Train Heating with Electric Haulage

SIXTEEN steam heating tenders of an improved design are being provided by the South African Railways for use with trains of steam type stock when hauled by electric locomotives on the Cape Western and Natal systems. The boilers are oil-fired, but electric power is used for auxiliaries associated with their operation. It was with this in view that provision was made in the design of the "4E" class locomotives, now going into service, for coupling the 110-volt auxiliary supply to an adjacent vehicle. The earlier "3E" class are equipped themselves with train-heating boilers, which are electrically-fired. When circumstances permit a boiler of sufficient capacity, this is a convenient method. It is used in the Manchester-Sheffield Co-Co series, in some of the Bo + Bo locomotives for the same service, and in the three Southern Region motor-generator locomotives. Where main-line electrification is widespread, however, the tendency is to equip passenger coaches with electric as well as steam heaters. In Europe many vehicles are arranged for taking heating current from locomotive supplies at 1,500 or 3,000 V. d.c., or 1,000 V. a.c., at different parts of the journey, the heaters being regrouped by a switch with relay protection against incorrect setting.

Rhodesian and Nyasaland Development Plans

DURING the next three years the Federation of Rhodesia & Nyasaland is to spend almost £17,500,000 on the development of the Rhodesia Railways and the Nyasaland Railways. This expenditure forms part of a £70,250,000 three-year plan for the Federation which was tabled in the Federal Assembly at Salisbury, Southern Rhodesia on June 29. The amount in respect of Nyasaland is £422,000, and this sum will be supplied from Federal loan monies to the Government of Nyasaland to enable it to make advances to the Nyasaland Railways for capital development; it is understood that much of the provision—more than £250,000—will be spent on rolling stock.

The first part of the Federal Development Plan embraces loan vote estimates of £21,059,122 in 1954-55, including advances towards the planned expenditure by Rhodesia Railways of nearly £8,000,000 in the coming year; new locomotives and rolling stock are being acquired, permanent way and bridges renewed, branches and extensions constructed, and workshops and staff housing provided. The total debits to loan account during 1954-55 are estimated at £23,392,122; estimated funds immediately available to meet this total £5,482,000 and include revenue provision for the final instalment of £478,000 from the International Bank loan to the Rhodesia Railways of \$14,000,000 (£5,000,000) made just over a year ago.

The amounts which were appropriated from loan funds during the six months to June 30 last included £5,000,000 for the advance of additional capital to the Rhodesia Railways in expectation of a loan being secured in time to make an advance to them before June 30. This loan, made by the United States Foreign Operations Administration and to which we referred editorially in our last week's issue, totals £3,571,000, and has been secured, but as it was not paid over to the Government before July 1, provision has been repeated in the 1954-55 loan votes.

Sir Arthur Griffin, the retiring Chairman of the Rhodesia Railways Board, referred in an address to the Rhodesia Section of the Institute of Transport to difficulties experienced by the railways in securing loans for development, and said that several small loans had had to be obtained in the absence of larger ones. All these loans had imposed

an onerous obligation on them, as interest and repayments had to be found from revenue, resulting in increases in rates, which could not be avoided.

The amounts involved are sufficient indication of the paramount position of the Rhodesia Railways in the Federal economy and the Federal Government's recognition of it. This system has undergone a remarkable expansion since the war. With about 2,500 miles of line it not only serves all the main centres of Southern and Northern Rhodesia, but is also international in character, exchanging traffic with the railways of the Belgian Congo, Mozambique and South Africa with which it is physically connected. On the close working between these systems and Rhodesia Railways the Rhodesias depend for the carriage of their imports and exports. The new outlet towards Lourenço Marques, the application and extension of centralised traffic control, and the execution of a comprehensive remodelling scheme at Bulawayo are only three of the many improvement schemes on which this great system is engaged and to which we have referred frequently. We commented last week on the notable rise in tonnage—nearly double—in the last six years; that of chrome carried has risen no less than 205·6 per cent and copper and coal carryings have also much increased.

The Federation's plans for the Rhodesia Railways were made known by Sir Roy Welensky, Federal Minister of Transport & Communications, in a recent interview. He said that it was intended that they should come under Federal control later this year, thus ending the present administration by a Higher Authority, a board representing Southern and Northern Rhodesia and the Bechuanaland Protectorate, which has obtained since 1949, two years after the Government of Southern Rhodesia purchased the system from Rhodesia Railways Limited.

By far the greatest tonnage of Rhodesian imports and exports passes through the Mozambique port of Beira, to which access is gained over the Mozambique Railways from the frontier point of Umtali. This dependence on Beira will be lessened when the completion of the "south-east connection," expected next year, gives Rhodesia the use of Lourenço Marques as well, but geography dictates that Beira shall remain the sea port of Nyasaland, whose railways also link with the Beira lines of the Mozambique Railways but have no direct connection with the Rhodesian system.

The Trans-Zambesia Railway, company-owned, runs from the Mozambique lines at Dondo, 18 miles west of Beira, to the Zambesi, and lies within Mozambique territory. The line continues into Nyasaland, first under the ownership of the Central African Railway Co. Ltd. and then under that of the Nyasaland Railways Limited, which carry railway communication up to the shores of Lake Nyasa. The Nyasaland Railways operate important lake and river steamer services, and the wharfage facilities at the lake ports are also to be improved under the Federal development plan. The Central Africa line is worked by the Nyasaland Railways, of which it is a wholly-owned subsidiary, and both are operated in conjunction with the associated Trans-Zambesia Railway, forming a through route of over 500 miles in length wholly under British company ownership.

British Railways 1,500-V. Motor Coach Stock

IN the past 23 years there have been three electrification schemes in Great Britain using 1,500-V. d.c. multiple-unit stock, the services concerned covering a total of 44·7 route-miles. The first was on the Manchester South Junction & Altrincham joint line of the former L.M.S. and L.N.E. Railways, converted in 1931, which remained the only 1,500-V. line in the country for 18 years in spite of the fact that this system with overhead supply had been recommended as a future standard as early as 1927. When that recommendation was made by the Pringle Committee, the Southern Railway member dissented, recommending 660-V. d.c., and the years between the M.S.J. & A. scheme and the war saw the carrying out of the Southern main

line projects at low voltage with third rail supply. In June, 1935, the Liverpool Street-Shenfield line of the L.N.E.R. was included in a London suburban electrification programme announced by the Government; and in 1936 details were given of plans for electrifying the same company's Manchester-Sheffield-Wath lines. The 1,500-V. d.c. system was adopted for both, and rolling stock was ordered in 1939, but the war delayed their inception so that it was not until 1949 that a second 1,500-V. multiple-unit service began in Great Britain with the Liverpool Street-Shenfield opening. Since June 14 this year there has been a third such service, between Manchester and Glossop, forming part of the latest stage of the complete Manchester-Sheffield-Wath scheme.

The lapse of time between the introduction of these services lends interest to a comparison of their electrical equipment. For the M.S.J. & A. trains—the first 1,500-V. d.c. stock for passenger service in this country—the General Electric Co. Ltd. supplied the electrical equipment for 24 motor coaches, 22 driving trailers, and 22 trailer coaches. The control apparatus is in a compartment behind the driving cab, and is generously dimensioned compared with current types of underframe-mounted equipment for the same voltage. Similarly, in these sets the 328 h.p. traction motors provide a considerable margin over the output normally demanded of them. In both respects, no doubt, the designers were aiming at long life and reliability, which have in fact been achieved, and there was less 1,500-V. d.c. experience to work on at that time than was available when planning the Liverpool Street-Shenfield and Manchester-Glossop equipments, with their underframe control gear and 210 h.p. self-ventilated motors. In the M.S.J. & A. stock the series/parallel control system provides ten resistance steps, with shunt transition between the motor groupings. Acceleration up to the parallel weak-field step is governed by a single relay. The Shenfield and Glossop trains both have 14 resistance steps, bridge transition, and a second relay with a lower setting for the weak-field notch. Their normal rate of acceleration is 1.24 m.p.h./sec., compared with 1.35 m.p.h./sec. in the Altrincham sets, and different settings of the main accelerating relay are selected automatically in the series and parallel groupings.

Electrical protection of the main power and auxiliary circuits in the Altrincham trains was provided by 1,500-V. circuit-breakers consisting essentially of two contactors in series. The more recent equipments use the line switches for this purpose, retaining the principle of two breaks in series but inserting a limiting resistance before rupture of the fault current takes place. In the Shenfield equipments the limiting resistance is brought into the main power circuit on the shunting notch in series with the normal accelerating resistances. Main protection of the auxiliary circuits in these trains is given by fuses.

The Shenfield trains comprise 92 three-coach units with English Electric equipment. Manchester-Glossop services are worked by the eight three-coach sets with G.E.C. equipment which are described in this issue. Figures published at the 1950 I.E.E. Convention on Electric Railway Traction show a horsepower per ton of 6.05 for all these units compared with 9.7 for the M.S.J. stock. Balancing speeds were quoted as 64 m.p.h. for the post-war sets and 63 m.p.h. for the earlier vehicles, all being designed for a maximum safe speed of 70 m.p.h. A special consideration in designing the Manchester-Glossop equipments had to be possible wide fluctuations of line voltage, for these sets operate on a main line with severe gradients where goods trains are worked by electric locomotives with regenerative braking. There may therefore be a considerable drop in pressure on a section where a goods train is starting or accelerating on an up grade, or some overvoltage when current is being returned to the line by regeneration. Now that the choice of 1,500-V. d.c. as a future standard has been confirmed by the 1951 report on "Electrification of Railways," and with the further development of multiple-unit stock recommended by the recent International Railway Congress in London, the design of 1,500-V. equipment for main-line running in a variety of conditions may be expected to receive intensified study.

Carriage of Merchandise by Rail

HERE has long been a need for a convenient book of reference for traders giving details in compact form of facilities provided by British Railways for the carriage of merchandise. This want is now met by a loose-leaf book entitled "Carriage of Merchandise by Rail," which is reviewed briefly on another page of this issue. As Mr. W. H. Vine, Chief Representative, London Commercial Services, British Railways, states in his foreword to the book, it is almost impossible to memorise the wide variety of information which is required at one time or another by transport users and railway staff, and to know where the facts can be obtained is better than relying on an imperfect memory.

The book contains, perchance, nothing new, but the facts most widely needed are there, arranged in alphabetical order with a thumb index for each letter. There is space for the insertion of new sheets and the loose-leaf binding enables out-dated sheets to be removed. This feature is probably one of the most valuable in the publication. Provided that new pages are issued with reasonable promptitude after new or amended regulations have appeared, the possessor of the book should not need to call on the railway service representative to provide other than the more unusual information. No rates are quoted, wisely, in view of the present state of flux. Several sets of Standard Terms & Conditions of Carriage are quoted in full. It may be arguable whether these, so easily obtainable in other forms, and probably already in the possession of those for whom the book is intended, need have been included in a book of this nature, but it is undoubtedly a convenience to have them under the same cover. Sectionalised maps, of the same size as the pages, would probably have been more useful than the standard British Railways map, printed on thin paper, which is included. This map, unless detached and mounted, is not likely to have a long life, and with a volume priced at 32s. the extra cost of such maps might have been well worthwhile.

British Railways, the Railway Clearing House, and the Mersey Docks & Harbour Board have provided much material from their official publications, and no doubt the transport user whose main need is for detailed information on a limited number of points will still refer to such sources. For the firm which needs an overall survey of railway and short sea shipping facilities, however, this book will be of great use. It is difficult to decide what should or should not be included in a book of this relatively small size, and Mr. Hogbin has no doubt drawn on his experience with the London commercial service of British Railways in making his choice.

Western Australian Government Railways

WE have received from Mr. A. G. Hall, Commissioner of Railways, Western Australia, a copy of the Railways Commission's report for the year ended June 30, 1953. That year's activities were vitally affected by the aftermath of the metal trades strike and the contraction of loan funds for the continuation of the rebuilding of the system. The effect of the strike on the previous year's revenue was referred to in the summary of the Commission's 1951-52 report in our issue of June 5, 1953. So serious was the position resulting from the strike that when traffic resumed on August 18, 1952, only 79 locomotives were available for working it, and the most urgent task was the repair of those immobilised by the strike. Services approaching normal were not restored until March, 1953. An indication of the steady improvement in the situation and of what might have been achieved but for the strike is furnished by the fact that more than half of the 2,600,000 tons of goods and livestock carried during the year was moved during its last five months.

Suburban public passenger services were discontinued during the strike but were restored in stages; this setback

and the increase in fares as from October 6, 1952, were responsible for loss of business. In the Perth area lack of co-ordinated control of transport resulting in overlapping and duplication of services was causing loss to the public generally in both economy and efficiency; roads and parking areas in Perth City were taxed to the limit, but the capacity of the suburban railways was not used to the full. Integration of essential transport services in the metropolitan area was thus overdue, and the Railway Commission had long believed in the need for an overall controlling authority.

The contraction of loan funds made it impossible to implement the planned rehabilitation of the railways essential to the expanding economy of the State, and the Commission felt that it was its duty to enlarge on the position in this report. It considered that the limited funds available for railway purposes should be used to improve important lines and those where future development was likely to justify the expenditure. On the other hand, recommendations had been made to the Government for the closing of unremunerative sections. Meanwhile, increases in rates were expected to be approved after the close of the year under review; they were designed to yield a 30 per cent increase in revenue.

Some 1,632 new wagons were placed in service during the year and the workshops were being reorganised and re-equipped to modern standards as fast as funds and deliveries of machinery would permit. As well as maintenance work they will be able to undertake the major part of locomotive and rolling stock construction. To meet the needs of the increase in coal production at Collie, a large marshalling yard was being constructed, and the first stage of the work had been completed; further progress depended on the funds available. The most serious problem, however, was track maintenance as there had been practically no relaying carried out for many years. In fact, it was expected that unless funds could be made available for renewing rails and sleepers the safety of some sections of the line would be threatened.

The capital liability at June 30, 1953, was £32,827,629, a net increase during the year of £6,454,332, of which virtually £5,000,000 were spent on locomotives and wagons. The following are some of the principal results of working:

	1951-52	1952-53
Mileage open	4,113	4,108
Train-mileage	6,801,622	5,255,184
Passenger journeys (road & rail)	11,121,778	6,975,601
Goods ton-miles	469,747,561	409,590,736
Average staff employed	12,049	12,491
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Passenger, &c., receipts	£1,531,101*	£1,293,104
Goods receipts	7,148,052*	6,202,530
Miscellaneous receipts	484,379*	476,626
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Total receipts	9,163,532	7,972,260
Working expenses	10,665,561*	12,087,333
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Working deficit	1,502,029*	4,115,073
Interest charges	725,436*	846,863
Depreciation	616,218*	735,955
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Final deficit	2,843,683	5,882,756

* Revised figure.

It is noteworthy, however, that though the decrease in tonnage hauled was general over most commodities, and despite restrictions, 3,000 tons more perishables, 23,000 tons more fertilisers and 4,000 tons more livestock were carried. The average overall haul was 156.40 miles as against 153.38 miles in the previous year. The rapidity of the improvement in traffic movement is shown by the fact that in August, the month when the strike terminated, only 92,166 tons were carried, whereas the average of the four months March-June was about 274,000 tons. This was largely because of the measures taken to restore disabled locomotives, by transferring boilermakers and fitters—selected by their own shop stewards—from main workshops to selected depots for two months, and replacing them by temporarily unemployed drivers and firemen, to work as fitters' assistants in the shops. As a result 240 locomotives were in service and no crews were unemployed by November, and 354 were running by the end of March.

Forty-eight "X" class diesel-electric locomotives were on order from Metropolitan Vickers; the order is stated to be the largest ever placed with a British firm for diesels. This engine has a 10-ton axle-load so that it can be universally used, even on 45-lb. rails. Eighteen "Y" class branch-line or shunting diesel-electrics were also on order with British Thomson-Houston Co. Ltd. and the Drewry Car Co. Ltd. Another order was for 24 "VF" class heavy steam locomotives placed with Beyer, Peacock & Co. Ltd. During 1952-53 the net increase in wagon stock was 1,409. A flashbutt rail-welding depot was completed at Midland Junction.

British Transport Commission Traffic Receipts

PASSENGER receipts for British Railways in Period 6, the four weeks ended June 20, were £2,094,000 above those for Period 5, but have continued the trend noted in our review of the receipts of that period in not paralleling the seasonal gain to be expected, which, between the corresponding periods of last year, was £2,292,000. The result is that there is a decrease of £188,000 compared with Period 6 of last year. The merchandise and livestock figures show an increase of £412,000 over last year. The fall of £783,000 from Period 5 is appreciably less than the fall of £878,000 between the corresponding periods of 1953. Coal and coke traffic shows a very considerable rise of £1,211,000 over last year. This may be due in some part to the recent exhortations to the public to buy coal now for the winter and to the reduced summer coal prices. The aggregate gain for the 24 weeks for the year so far is £2,683,000, nearly half of which is represented by the gains in this period. Receipts from parcels and so on are again at a satisfactory figure, the increase of £166,000 over last year being £4,000 more than the gain in Period 5. Collection and delivery services, with an increase of £78,000 over the corresponding period of last year, show an encouraging tendency. The receipts are lower than for Period 5 but the fall is not as great as might have been expected from the 1953 figures.

	Four weeks to June 20		Aggregate for 24 weeks		Incr. or decr.
	1954	1953	1954	1953	
Passengers—	£000	£000	£000	£000	£000
British Railways	9,903	10,091	188	47,530	46,541 + 989
London Transport—					
Railways	1,410	1,499	— 89	8,578	8,320 + 258
Road Services	4,047	4,059	+ 12	23,173	22,317 + 856
Provincial & Scottish					
Buses	4,192	3,989	+ 203	21,363	20,639 + 724
Ships	516	471	+ 45	1,718	1,647 + 71
Total Passengers	20,068	20,109	— 41	102,362	99,464 + 2,898
Freight, parcels & mails—					
British Railways					
Merchandise & live-stock	8,207	7,795	+ 412	52,014	50,290 + 1,724
Minerals	3,436	3,237	+ 199	21,427	21,060 + 367
Coal & coke	8,796	7,585	+ 1,211	53,796	51,113 + 2,683
Parcels, etc. by passenger train	3,108	2,942	+ 166	18,106	17,405 + 701
Total British Railways	23,547	21,559	+ 1,988	145,343	139,868 + 5,475
British Railways C. & D., etc.	924	846	+ 78	5,620	5,354 + 266
Others*	6,272	6,195	+ 77	38,269†	38,396 — 127
Total freight, parcels and mails	30,743	28,600	+ 2,143	189,232	183,618 + 5,614
TOTAL	50,811	48,709	+ 2,102	291,594	283,082 + 8,512

* Inland waterways, freight haulage and ships. † Adjusted figure.

London Transport railways receipts fell by £24,000 from Period 5 and by £89,000 from the 1953 figures. This is in sharp contrast to last year when there was a gain of £129,000 between the same two periods. No doubt the influence of cheap evening fares is in part responsible for this fall, but the similarly discouraging decrease of £12,000 in London Transport road services receipts sug-

gests that there has been an overall drop in passengers compared with last year, when, however, Coronation traffic increased revenue.

Provincial and Scottish buses recovered to a considerable extent, showing an increase of £203,000 over last year and a gain of £520,000 over Period 5. Passenger shipping receipts show an increase of £45,000 on last year, and an increase of £174,000 over Period 5, compared with an increase of £165,000 between the corresponding periods last year. The aggregate figures for 1954 to date now show an increase of £71,000 over the 1953 figure and continue the recovery noted last month. Receipts for inland waterways, freight haulage, and ships show an increase of £77,000 over last year. This is the first increase shown under this head for some time. The portmanteau nature of the item, complicated by an adjustment made in the aggregate figures, makes it difficult to suggest a reason for this, although the road haulage section may by now be finding some sort of equilibrium. It is, in any case, one of the most interesting aspects of the Period 6 figures.

PERCENTAGE VARIATION 1954, COMPARED WITH 1953

		Four weeks to June 20	24 weeks to June 20
British Railways—			
Passengers	+ 1.8
Parcels	+ 5.6
Merchandise & livestock	+ 5.2
Minerals	+ 6.1
Coal & coke	+ 15.9
Total	+ 5.6
C. & D. services	+ 9.2
Ships (passengers)	+ 9.5
British Road Services, Inland Waterways and Ships (cargo)			
(cargo) ...			
Road Passenger Transport, Provincial & Scottish	+ 5.0
London Transport—			
Railways	- 5.9
Road services	- 0.2
Total	- 1.8
Aggregate	+ 4.3

Swiss Transit Goods Traffic

ONE of the greatest economic assets of the Swiss railways is their geographical position in the centre of Europe. Hemmed in by countries with highly developed industries, the Swiss main lines, and particularly those via the Gotthard and Simplon, form international highways, particularly as their capacity has been increased to the maximum by electrification. The revenue accruing to the Swiss railways from this source is all the more welcome to them as the international goods traffic can be moved in bulk without encumbering Swiss marshalling yards.

It is not surprising therefore that the Swiss are carefully watching developments which might tend to restrict from this useful source of revenue. One such development is the electrification of railways which eventually lead to the Brenner and Mont Cenis routes. The Brenner and Mont Cenis lines, long electrified, are being linked with main lines electrified as far as Paris, Stuttgart, Nuremberg, with further electrification in prospect, so that there is a distinct likelihood of freight traffic crossing the Alps being diverted from the Swiss to the Austrian and French railways.

If the Swiss want to keep this traffic they must take a broad view and assist the development, and specially the electrification, of main lines connecting with their own. It is the recognition of this fact which has led the Swiss Government to adopt a policy of lending large amounts of capital to the German and French railways for the electrification of the main lines leading to Basle (Karlsruhe-Basle on the right bank, and Réding-Strasbourg-Basle on the left bank of the Rhine).

On the German side, electric operation between Basle

and Freiburg is scheduled for 1955, and is to be extended to Offenburg in 1956 and Karlsruhe in 1957. The traction system will be the same as that adopted by the Swiss, Bavarian and Austrian railways—15,000 volt, 16½ cycles. Connection with the Swiss system is therefore easy in principle; it merely requires the electrification of the existing junction railway which connects the Baden Station with the main station at Basle and with the marshalling yard at Muttenz, east of Basle, and the reconstruction of the bridge which carries the junction railway across the Rhine. More difficult is electrification on the French side, as the line from Strasbourg is to be electrified at 25,000 volt, 50 cycles, in conformity with the electrification being carried out between Lille, Valenciennes, Thionville and Metz. Special arrangements must therefore be made at Basle main station.

In addition to the works to be carried out in the Basle area as a direct result of the electrification of the German and French lines, the Swiss Federal Railways must also undertake other improvements. The main marshalling yard for freight trains for Germany and France, at Wolf, is too small and inefficient. It is planned to extend the modern marshalling yard at Muttenz which at present serves incoming trains only; the old yard may become carriage sidings. At Basle, the substitution of a modern signalbox for the mechanical box on the Swiss side is overdue. Another platform has been added recently, and there are plans for an additional platform also on the French side. Special powers may have to be sought to finance these schemes.

Letters to the Editor

(The Editor is not responsible for opinions of correspondents)

Diesel Passenger Services

July 1

SIR.—In his letter in your issue of June 25, Mr. Norman N. Forbes asks why British Railways did not consider placing reversible seats in their new lightweight diesel trains, rather than fixed seats which require half the passengers to have their backs to the direction of travel. This point was in fact given careful consideration when the designs for the lightweight units were being prepared, and it was to provide the maximum seating accommodation for passengers that the present system was adopted. Had reversible seats been installed, the additional leg room necessary would have entailed a loss of about 15 per cent in the seating capacity of each two-car unit.

Yours faithfully,

J. H. BREBNER
Chief Public Relations &
Publicity Officer

British Transport Commission,
222, Marylebone Road, N.W.1

June 25

SIR.—In reply to Mr. Norman N. Forbes's letter in your issue of July 25, may I point out that seats fixed facing in one direction permit the greatest number of seats with a given leg room. Seats with reversible backs can never be as comfortable as properly shaped fixed seats, and rotatable seats, as in American day cars, would occupy more space.

In my experience, people with a definite preference as to direction of travel are a minority, and equally divided in their choice; the very adequate leg room is of more importance and only too rare in British stock, open or compartment.

Had Mr. Forbes sat inside one of these cars, as many of us did at the excellently arranged Willesden exhibition, perhaps he would have been less conservative in his views.

Yours faithfully,
JOHN RODGERS

132, Worrin Road, Shenfield

THE SCRAP HEAP

Mere Mails

A protest over carrying mailbags in ladies only compartments is to be made to British Railways by Keymer Parish Council, Sussex.—From "The Daily Telegraph," quoted by "Picture Post."

The L. & D. C. Railway

"The L. & D. C. Railway is no creature of the imagination, it's as real as the sun in the morning—and as unprofitable as money thrown out of the window. It's made up of the trains our railroad has to run to earn the money needed to pay our freight loss and damage claims. Last year these claims amounted to \$3,500,000."

The above extract is taken from a leaflet which was recently issued by the Canadian National Railways under the title of "Let's Get that Louse off our Backs." It is designed to call the attention of freight handling crews to the losses involved by claims for freight loss and damage. The letters L. & D. C. stand for Loss and Damage Claims, represented as a parasite which every railway carries on its back.

Manly Hobby

A platform and two railway lines at the Paris Invalides suburban station, below the airways terminus, are being reserved to show the achievements of the French National Railways. A notice inviting public inspection says "Entrance Free," but anybody visiting the show would think it said "Men only."

Old men, young men and boys crowd

in and out of the two locomotives, sit in the seats of the railway coaches and examine every detail in all three classes as if they had never been in a train before. The showpiece is an electric locomotive which bears the proud notice "World speed record: 243 km. per hour, 21.2.54."—From "The Daily Telegraph."

Last Horse at Paddington

Railway staff at Paddington recently raised £20 in three hours to help to provide a home for the last railway cart horse to remain in service at Paddington, a mare named Mary. She is to be sent to a farm at Bedford and every effort is to be made to find a home for her.

Hazards of Holidays

With the holiday season gaining momentum, station courtyard and coach terminal are giving their weekly exhibition of how the family gets away. That the joys of setting out on the Saturday morning are purely juvenile is well known to any parent who has wrestled simultaneously with luggage threatening to burst asunder and small offspring with great expectations. Far better, surely—comes the desperate thought—for the latter to be given the labels and firmly stacked in the luggage van. The coast-bound journey is hardly the time for historical contemplation, but it is a moot point whether steam and the internal combustion engine have mollified the hazards of this summer pilgrimage since it became fashionable two centuries ago.

Perhaps they have, if we are to judge from the eighteenth-century mode of getting to Margate and other "obscure sea-coast villages." The traveller booked on one of the "yachts, pacquets, or hoyes plying irregularly from Billingsgate, at fares ranging from five shillings to four guineas each way." For such a journey, according to one writer, a month's preparation was considered essential.—From "The Manchester Guardian."

Mopping Up Operation

... at a level crossing [near Paris] neatly lettered on a white board, the gatekeeper had written: "If you happen one day to knock down, through haste or distraction, this level-crossing barrier, please assist the custodian to remove the débris and clear the track."—From the "Daily Mail."

Riding at Will

I suggest London's petrol and trolleybuses and the Underground railway—possibly together with Green Line coaches—should inaugurate a fare that would enable one to travel at will all over these services.

It is my opinion that London Transport's original demand for £4,300,000 would easily be met, and a large surplus would be realised. The scheme could be very elastic. The price could be 5s. for the whole day, and reduced after 3 p.m. or 4 p.m. On the other hand, there could be a ticket at 2s. 6d. for petrol and trolleybuses only.—From a letter to the "Evening Standard."

Fiftieth Anniversary of the "Cornish Riviera Express"

Private and not for publication.

Notice No. 107.

GREAT WESTERN RAILWAY.

Office of SUPERINTENDENT OF THE LINE
Paddington Station,
June 1954 (P.R.)

10.10 A.M. PADDINGTON TO PENZANCE

10.0 A.M. PENZANCE TO PADDINGTON

LIMITED EXPRESS TRAINS.

Commuting on July 1st, NEW EXPRESS TRAINS will run between Paddington and Penzance, and they will run between London and Plymouth without a stop. The Down Train will leave Paddington at 10.10 a.m. and the Up Train will leave Penzance at 10.0 a.m.

The working of these Trains must have special attention, and a clear road must be kept for them.

The load of each Train will be limited to 7 eight-wheel Coaches (56 wheels) and this must not be exceeded.

The composition of the Trains will be as follows:—

		CARRYING CAPACITY	WEIGHT	TIME
Brake Third	Penzance	32	36	
Third	Edgbaston	64	36	
First	Edgbaston	28	36	
Driving Cab	Edgbaston	—	36	
Second	Edgbaston	42	36	
Brake Third	Edgbaston	32	36	
First Class (Overhead)	Edgbaston	12	36	
		144	230	

Passengers holding Week End Tickets, Single Journey, Free Tickets, and Privilege Tickets will not be allowed to travel by these Trains.

No Saloons, Family Carriages or Extra Vehicles are to be attached to the Trains.

No Compensation is to be retained unless the whole of the seats in the Compartments are taken or paid for, i.e., 4 Firsts, 8 Seconds or 8 Thirds, as the case may be.

For Times of the Trains Up and Down, see back.

J. MORRIS,

Superintendent of the Line.

DOWN TRAIN.		UP TRAIN.	
From Paddington	To Penzance	Arr. 10.10	Arr. 10.00
1	PENZANCE	10.10	10.00
2	Paddington	10.10	10.00
3	Edgbaston	10.10	10.00
4	Swindon	10.10	10.00
5	Bath	10.10	10.00
6	Gloucester	10.10	10.00
7	Cheltenham Road	10.10	10.00
8	Coventry	10.10	10.00
9	Birmingham New St.	10.10	10.00
10	Birmingham (Euston)	10.10	10.00
11	Bristol (E.C.W.)	10.10	10.00
12	Bristol (Plym. Halt.)	10.10	10.00
13	Uphill Junction	10.10	10.00
14	Taunton	10.10	10.00
15	Exeter	10.10	10.00
16	Tavistock	10.10	10.00
17	St. Germans	10.10	10.00
18	Tregony Junction	10.10	10.00
19	Tregony	10.10	10.00
20	Tregony	10.10	10.00
21	Tregony	10.10	10.00
22	Trewey	10.10	10.00
23	Trewey	10.10	10.00
24	Trewey	10.10	10.00
25	Wrangaton	10.10	10.00
26	Homerton	10.10	10.00
27	London	10.10	10.00
28	Paddington	10.10	10.00
29	Down Train	2.30	1.15
30	Up Train	2.30	1.15
31	Devonport Junction	2.00	1.15
32	Totnes	2.00	1.15
33	Dartmouth	2.00	1.15
34	Salcombe	2.00	1.15
35	Teignmouth	2.00	1.15
36	Budleigh	2.00	1.15
37	Budleigh	2.00	1.15
38	Budleigh	2.00	1.15
39	Tiverton	2.00	1.15
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OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

SOUTH AFRICA

Planning for Non-European Services

Although more than 1,000 trains are operated every week between Johannesburg and the native townships on the perimeter of the city, the demand for train accommodation remains unsatisfied. From Mondays to Fridays, 500 trains, excluding specials are run to and from Johannesburg; on Saturdays, 91 are scheduled from and 112 to Johannesburg; on Sundays the total is 104 outward and inward, a grand total of 1,307.

During the peak periods, the services are extensive. For instance, 28 trains are operated in 195 minutes every weekday morning to Johannesburg and nine to Faraday Station; in the afternoon 33 are operated from Johannesburg, Braamfontein and Faraday to the native townships.

The purchase of new coaches is now under consideration and these plans are coupled with proposals to improve track capacity and service generally.

Third-class suburban passenger traffic in the Reef area increased from some 56,000,000 journeys in 1946 to over 73,000,000 in 1952/53. The latest statistics show that the figure for 1953/54 is likely to be some 80,000,000. This will represent an increase of about 43 per cent in seven years.

Reef Suburban Stock

The railways have augmented the Reef electric suburban coaching stock by 219 vehicles since the war, of which no fewer than 134 were for the non-European services. This is over and above other steps taken in an endeavour to cater for this traffic, such as improved and additional station and track facilities, and additional lines to serve native locations.

Coaches are regularly cleaned and everything possible is done to keep them in order. It is found, however, that they are constantly having to be repaired as a result of wilful damage. To provide more comfort for third-class passengers the policy was adopted of providing upholstered seats but the damage has been so great and the repair costs so heavy that the Administration has had to issue instructions for the removal of the upholstery when opportunity arises.

Passengers persist in endeavouring to board the first available train, although this results in overcrowding and other trains for the same destination follow at short intervals. It is also the practice of some passengers to jump on the running boards of moving trains, ride in that position for a distance and then jump off at the other end of the platform.

In an endeavour to stop this and other dangerous practices, the Administration, in recent months, has caused some hundreds to be arrested and prosecuted. Although this campaign has had some result, it has not yet had the desired effect and further action is now contemplated in the interests of the passengers themselves.

GOLD COAST

Achimota-Tema Line Opened

The ceremonial opening of the Achimota-Tema-Shai Hills line which took place on May 11 marks the virtual completion of the preliminary works for the new port of Tema, east of Accra. At the invitation of Dr. Kwame Nkrumah, the Prime Minister, the ceremony was performed by Sir Reginald Saloway, Officer Administering the Government, accompanied by Lady Saloway, in the presence of Mr. W. H.

Salkield, General Manager, Gold Coast Railway, and many guests.

The Achimota-Tema section, built by Taylor Woodrow (West Africa) Limited, is 18 miles long and links the future port with the main Accra-Kumasi line. The Tema-Shai Hills section, for which George Wimpey & Co. Ltd. was the contractor, is 20 miles long and will be used to carry the stone needed for the building of the port from quarries in the hills.

INDIA

"Stop Rough Handling" Week

A "Stop Rough Handling" Week was observed on the Western Railway from March 5 to 11. The staff was enjoined not only to move consignments as fast as possible, but also deliver them at destinations without loss or damage. The instructions further stated that rough handling of packages and rough shunting of wagons must be avoided at all costs, to sustain the reputation and reliability of the railways as carriers.

The special posters issued for display at stations and in yards illustrated the proper method of handling packages and shunting wagons. The folder distributed to the staff stated that damage and loss to consignments as a result of rough handling meant loss to customers, the railways and the nation. The railways were paying compensation of only Rs. 15 lakhs ten years ago, but are now paying Rs. 98 lakhs. A film entitled "Stop Rough Handling" was shown to staff at important stations.

VICTORIA

Railway Losses Cut

The Minister of Transport has announced that the railways this year will lose £1,010,000, compared with last year's loss of £3,800,000. The Minister gave three reasons for the financial recovery of the railways: increased efficiency in the goods division, the drive to attract more business to the railways, and better relations between the Railway Commissioners and employees.

The Minister said that last year railway revenue totalled £33,800,000. This year, he estimated, it would be £37,400,000. This year's deficit would have been even lower if the railways had not been forced to spend so much money on urgent track maintenance. The higher revenue was even more creditable because lack of overseas sales had heavily reduced the shifting of the wheat harvest.

Aerial Survey

Early in 1947 the railways placed their first contract for an aerial survey. It covered 150 miles of track and included the Gippsland line between Dandenong



Inaugural train arriving at the temporary station at Tema, Gold Coast Railway

and Traralgon. The survey was completed in a few weeks, and plans for the doubling of the line were immediately put in hand.

The first camera used had a lens focal length of $8\frac{1}{2}$ in. This was later changed to one of 12 in. and the shutter was given a speed of 1/200 sec. At 1,800 ft., the lens gave a plate scale of 150 ft. to an inch. Fifty thousand negatives and prints covering the State network of railways have been made and a check survey of the suburban system is now in hand to enable stereoscopic viewing. The system of aerial survey adopted by the Department has not been used elsewhere in Australia. It has been found to be faster and less costly than standard methods of ground survey.

BRAZIL

Goias Railway

The Goias Railway has obtained a loan of £1,600,000 from the National Bank of Economic Development. It is planned to extend the railway, in the interior of Brazil, from Goiania towards Inhumas. First, a seven-mile section will be built for suburban traffic at Goiania, the State capital of Goias.

Railway Centenary

To commemorate the centenary of Brazilian railways, President Vargas has issued a decree declaring as a national historical monument the nine miles of line running from the old port of Maua, on the Bay of Guanabara, to

the halt of Fragoso, now a section of the Leopoldina Railway and part of the first railway in Brazil, opened in 1854. The gauge is to be widened from metre to broad to enable the 2-2-2 locomotive *Baronesa*, the first used in Brazil, to run on the line. This locomotive was illustrated in our April 30 issue.

Re-equipment of Southern Systems

Plans are afoot for the re-equipment of the Parana-Santa Catarina and the Rio Grande do Sul railways. For this it is intended to raise funds from the sale of timber to Britain, and it has been suggested that Britain should increase its imports of Brazilian timber from 40,000 to 200,000 a year, between five and 12 per cent of payment in sterling being held in Britain to help to re-equip the railway. At current prices the total revenue from the timber should be about £1,500,000.

IRELAND

Wage Rate Recommendations

Increases of from 2 to 4 per cent on basic rates are recommended by the Joint Industrial Council in applications for wage increases for 7,500 staff of C.I.E. in the operating grades. The claims were for 12s. a week by the Irish Transport & General Workers Union and 12-22s. by the National Association of Transport Employees. The A.S.L.E.F. applied for a 10 per cent increase for engine drivers, firemen and cleaners.

Publications Received

Carriage of Merchandise by Rail. Compiled by H. Hogbin. London: F. E. Rayment Limited, 316, Vauxhall Bridge Road, S.W.1. 9 $\frac{1}{2}$ in. x 8 $\frac{1}{4}$ in. Price, by subscription, 32s. for the first year, 12s. 6d. subsequent year.—This compendium of British Railways regulations and facilities is intended for transport managers and others who need a convenient form of reference to matters concerned with the carriage of goods. The book is bound in loose-leaf form and has space for the insertion of sheets containing new or revised matter which will be issued from time to time to ensure that the information is kept up to date. Mr. Hogbin is a member of British Railways' London Commercial Service, and his book will undoubtedly be of great service, not only to those for whom it is primarily intended, but to railway staff and students. There is a foreword by Mr. W. H. Vine, Chief Representative, London Commercial Service, British Railways.

Railways for Britain. By Patrick Thornhill. Illustrated by R. Barnard Way. London: Methuen & Co. Ltd., 36, Essex Street, Strand, W.C.2. 8 $\frac{1}{2}$ in. x 6 $\frac{1}{4}$ in. 84 pp. Illustrated. Price 8s. 6d.—It is not easy to condense the history of the development of the

British railway network into a mere 80 pages and produce at the same time an attractive book of reference for the young reader. The author has carried out the task well, aided by a lively turn of phrase which keeps his text from ever becoming a catalogue. There are many maps and drawings in the well-known and pleasing style of Mr. R. Barnard Way, whose book "The Story of British Locomotives" is a companion work in this series of "Methuen's Outlines." Mr. Thornhill is at pains to show how competition as much as physical geography and economics has shaped our railway pattern.

Summerson's Platelayers' Guide: Seventh Edition, 1954. Thomas Summerson & Sons, Ltd., Darlington. 8 in. x 5 in. 94 pp. Illustrated; 12s. 6d.—This technical handbook on the design, installation, maintenance and equipment of railway sidings—primarily industrial firms' sidings—was first published in 1879. The new edition has been entirely re-written and condensed to meet demands of consulting engineers, civil engineering contractors, and the technical staffs of firms owning railway sidings. The foundations of its essentially simple and practical contents are based on a century of designing, fabricating and laying sidings the world over, and its

The N.A.T.E. associated its application with a claim for a reduction in area differentials.

Mr. M. J. Hayes, Staff Relations Officer, C.I.E., said that to meet the claims of the I.T.G.W.U. and the I.R.U. would cost £237,000. To meet the claim of the N.A.T.E. would cost £300,000 in a full year and that of A.S.L.E.F. £60,000. The wages bill of the company for the year ended March last was £8,336,000. Since 1946 there had been five rounds of wage increases, three of them during the office of the present Board. If wage increases were imposed on the company they could only be met by increasing fares and charges, by reducing expenditure and making further economies which might involve reductions in staff.

Continuing the Board's case, Mr. Hayes said that the loss on the working for the year ending March 31 was £1,024,099 (the loss for the previous year was £2,017,083). The company hoped to improve the position and eventually to fulfil its obligations to pay its way by the introduction of a new form of traction and by making improvements in administration. Every effort must be made to effect economies wherever possible and to increase revenue. The company had no reserves and if an award was made by the council it could not pay the increase unless the company was first put into the position that it could collect the money.

The increases mentioned above were subsequently awarded by the Council.

"new look" embodies excellent illustrations and copious tables recalculated to conform to modern specifications. After the essentials of track in sidings have been briefly mentioned, including points and crossings, the various kinds of siding are described and their special features noted; they include reception, running, standing, and special sidings. Then follow details of different types of permanent way with clear diagrams and dimensions. Layouts are also discussed with due consideration for standard fixed and running dimensions, and much space is given to point and crossing work, with many more diagrams and exhaustive tables to suit all conditions.

The Application of Light Alloys to Engineering.—Head Wrightson Aluminium Limited has produced a booklet which describes some of the Company's products and illustrates a number of larger up-to-date applications of aluminium alloy. Bridge structures, travelling cranes, crane jibs, hangar doors, building structures, and roof trusses are among uses on a grand scale, and mine cages, dragline buckets, and auto dumper buckets are other uses illustrated. One interesting use is seen in the booklet itself, the front cover being formed of impressed aluminium sheet supplied by the British Aluminium Co. Ltd.

Moving Road Trailers on Railway Wagons

A survey of developments in the U.S.A., Canada, South Africa, and some European countries

(By a correspondent)

THE movement by rail on flat wagons of loaded road vehicle trailers—colloquially known as the "piggy-back" service—is generally thought to be of modern conception. The first service of this type, however, was begun by the Chicago, North Shore & Milwaukee Railroad in the United States in 1926. This railway, for its own convenience, offered a less-than-wagon load service in railway-owned semi-trailers on flat wagons.

In contrast to Great Britain and some other European countries, the movement by rail of large railway and privately-owned containers has never been of great importance in the North American continent. This is partly because of the much larger average consignment in the United States and Canada, and the difficulty of loading and unloading. Such problems are increased by the much wider area covered and the expense of providing adequate craneage at all stations which might have to handle containers. The conveyance of large mobile road vehicle trailers by rail seemed to give the advantages of the container system without its limitations.

Handling of Containers

In Europe developments have been, in general, along different lines. On British and many other European railways it has been considered better to face the problems involved in the movement of containers, and provide handling facilities, than to haul by rail the unremunerative weight of a road vehicle undercarriage. In Great Britain, by the use of static and mobile cranes, containers can be handled at most stations, thus offering a container service throughout the country. In Holland, Germany and elsewhere in Europe emphasis in development has been on the handling of containers to and from railway wagons without the use of cranes. Perhaps the best example of this is the D.A.F. type transporter in use on the Netherlands Railways, the Belgian National Railways, the German Federal Railway and other railways, whereby the transfer from rail to road vehicle, and vice-versa, occupies only eight to ten minutes. This system was described and illustrated in our March 10, 1939 issue. In addition, some Continental railways have developed small, wheeled containers with a capacity of one to three cu. m. which can easily be loaded by hand.

Although the conveyance of road vehicle trailers by rail has been developed to some extent as an alternative to containers in providing a door-to-door service, this is not the prime cause of the considerable growth of this form of transport in recent years. The

specific urge has been the post-war increase in road competition, which has been accentuated by the continual advance in railway operating costs.

Advantages of System

To a road haulier it is of considerable benefit to work to fixed costs, and the quoting of "per vehicle" rates by railways helps to make this possible. These rates are generally based on the cost to the road transport concern of moving the road vehicle over the road; rates higher than this would not attract traffic. The road vehicle will have a quicker turnaround where the journey is sufficiently long to gain advantage of the higher speed by rail. Furthermore, capital expenditure will be reduced both as a result of this quicker turnaround and through the use of trailers; one tractor at each end of the rail journey will be sufficient to handle a number of trailers, thus reducing considerably the number of motive units required. Garage and maintenance costs will be reduced, economy in personnel will be possible, insurance costs will fall, the elimination of many road hazards will reduce claims, and delays due to bad road conditions will largely disappear.

To the railway, the acquisition of new traffic which would otherwise have gone all the way by road is the greatest gain; in particular the road-rail trailer system will ensure the return to rail of a proportion of the smaller traffic, which has been particularly vulnerable to road competition. The return journey of the trailer does away with much empty rail haulage of flat wagons, and the simplicity of the terminal arrangements will speed up the turnaround of railway rolling stock. In comparison with other forms of freight traffic, loss and damage claims will be low.

Experience in U.S.A.

There is no doubt that the greatest development in the road trailer by rail service during recent years has taken place in the U.S.A. There, articulated semi-trailers are used, and some American railways have built special flat wagons, which often can carry two large trailers, for this traffic; ordinary flat wagons, suitably adapted, are also in use. It is not unusual to find the service restricted to a railway's own road vehicles or to those of subsidiary companies, and in most other cases the service is only available to common carrier road haulage undertakings; some pressure is, however, being applied to the railways to accept the road vehicles of firms on contract work and those owned by traders themselves. It is thought that the establishment of rates for these types of road user would give too great an opportunity for the diver-

sion of traffic from rail to road, and so far this pressure has been resisted.

During the past four or five years trailer-on-flat-wagon services have been begun by many railways in the U.S.A. Recent examples of railways offering services for the conveyance of loaded road vehicle trailers on flat wagons are the service begun by the Southern Pacific Railroad in mid-1953 between the San Francisco Bay area and Los Angeles (470 miles) and those inaugurated by the Chicago & North Western Railway later the same year between Chicago and St. Paul-Minneapolis (241 miles) and Chicago and Council Bluffs-Omaha (485 miles).

The Chicago & North Western services are limited to its own road vehicle trailers used for the conveyance of less-than-wagonload traffic. Traffic is collected during the afternoon in Chicago and delivered early the following morning at destination. Traffic passes in both directions over the routes operated. Specially equipped flat wagons are used and the trailers are secured to them by the railway personnel; loading crews can complete this operation in an average of ten to fifteen minutes, and at destination the trailers can be hauled direct to the trader's premises. A special feature is the reduction in the over-all transit time from consignor to consignee for less-than-wagonload traffic.

New Haven "Trailiners"

During 1937, the first year of operation, 1,500 trailers were conveyed by the New York, New Haven & Hartford Railroad; in 1952, 34,000 were carried. The use of the New Haven "Trailiners" is not restricted; any certified road haulier, as well as private carriers, can at present use them. An application has been lodged with the Interstate Commerce Commission for permission to restrict the service to common carriers. Charges are based on the length of the trailer up to a specified weight limit; over that limit an additional charge is raised at a fixed rate per 100 lb. Empty trailers which have previously been conveyed loaded are conveyed at one-half the loaded rate. The charges are approximately equivalent to the over-the-road costs.

A time schedule is laid down for the receipt of loaded trailers at departure points and for the latest loading times to catch the evening services. This schedule shows that trailers received at the Harlem River Yard (loading point for New York) as late as 8.30 p.m. will be despatched on the 10.20 p.m. service and arrive at Boston by 4.55 a.m. the next day. Fast trains convey the trailers at average speeds of 45-50 m.p.h.

During the early days of the service, the New York, New Haven & Hartford

Railroad used 49-ft. and 53-ft. flat wagons, capable of taking two trailer bodies ranging in over-all length from 18 ft. to 26 ft. It was decided in 1950 because of the growing length of trailers, to standardise on a wagon designed to transport a single trailer measuring up to 36 ft. overall. The new wagon has a loading platform 40 ft. long and a 50-ton nominal capacity.

The basis of the construction of the wagons is a one-piece cast-steel under-frame manufactured by the General Steel Castings Corporation. For securing the trailers, the following is among the equipment included on each wagon: four 25-ton capacity screw jacks, one pair to support the front and the other the rear of the trailer; four steel wheel chock blocks; four end anchor chains; two jack yoke beams to go across each pair of jacks; one set guard rails extending along the side of the car on each side; two high steel guard stakes to prevent lateral displacement of the trailer body. In addition there is a spring counterbalance reinforced steel apron plate to link wagons so that trailers can be end-loaded along a rake of flats.

Loading and Securing Trailers

At Harlem River, Boston and Providence there are inclined loading ramps at the dead end of a single track designed to hold from six to fourteen flat wagons. The end-loading ramps are constructed of concrete with a one in ten slope. The top of the ramp is level with the floor of the wagon, 3 ft. 5 in. above rail level. An illuminated catwalk alongside each track gives access for loading crews.

Except at New Haven, loading and unloading of the trailers is performed on a contract basis by a road subsidiary of the New York, New Haven & Hartford. The tractors in use for this purpose are equipped with an extra low reverse gear to obtain additional power when backing up the loading ramps. The loading, jacking and securing of a trailer takes, on the average, six to seven minutes; unloading averages from four to five minutes.

As already mentioned, at the time of loading the trailer is backed up the ramp and moved on to the wagon on which it is to be secured. With the normal type of articulated coupling (fifth wheel) it would be impossible to leave the front end of the trailer free to receive the supporting jacks on the wagon. To overcome this difficulty the loading tractors have been equipped with a special coupling which leaves the bearing of the trailer free and which can be raised or lowered by hydraulic controls within the driving cab. This enables the trailer to be placed on the flat wagon without adjusting its supporting wheels.

The Electro-Motive Division of the General Motors Corporation has evolved a scheme to facilitate the side-loading of semi-trailers. A prototype well wagon of all-welded construction has been built. It is 75 ft. long, 9 ft. 6 in. wide with a tare weight of 37 short tons; the well is 29 inches above

rail level. There is a stanchion at each end, with a rubber shock-absorber device to engage the king-pin and to cushion the movement of the trailer to a controlled amount of 4½ in. The establishment of terminals with sunken tracks or elevated platforms is suggested, so that the wagon floor is at the same level as the loading area.

Both the Canadian Pacific Railway and Canadian National Railways have established a trailer-on-flat-wagon service between Montreal and Toronto. It was decided recently to extend the arrangements to larger consignments of three tons or more. The Canadian National Railways service has subsequently been extended beyond Toronto to Hamilton. Charges are raised in accordance with the normal scale for the freight in question, the advantages to the trader being a quicker door-to-door delivery. Developments in Canada were described in our October 23, 1953, issue.

South African Services

The first of such services in South Africa was put into operation experimentally in 1950. The container-trailers were small in comparison with North American standards, having a weight carrying capacity of only three tons. Owned by the South African Railways & Harbours, they were used to give door-to-door transit for household furniture and general merchandise. Normal rail charges were raised plus a surcharge and an addition for cartage at each end of the rail haul.

With the continual increase in demand, the South African Railways decided, in 1951, to place an order for 150 larger container-trailers with a capacity of five tons. Semi-trailers have been used predominantly in the United States but the South African trailers are four-wheel vehicles. The three-ton trailers were described in our September 29, 1950, issue; our November 20, 1953, and March 12, 1954, issues give details of the design and operation of the five-ton type.

On British Railways some road trailers conveying liquids in bulk, such as milk, vinegar, beer and oil, are conveyed by rail on flat wagons. Mostly these trailers are four-wheel vehicles, although there are some articulated two-wheel trailers in use. The trailers are normally owned by the trader himself, but where a trader is prepared to sign a contract for a minimum period of five years British Railways are prepared to construct trailer tanks to a trader's specification, and to hire them to him.

Developments in Ireland

Coras Iompair Eireann operates road-rail trailer tanks for the conveyance of milk in the Republic of Ireland. More important developments in the conveyance of road vehicle trailers on flat wagons have taken place in Northern Ireland where the Ulster Transport Authority has carried out a series of experiments. In 1950 speci-

ally designed semi-trailers were loaded on well wagons, and tests carried out to ascertain whether such a form of transport showed an advantage over the throughout transport by road over distances of from 40 to 95 miles. A portable electric motor was used to assist in manoeuvring the trailer on to the flat wagon. Later improvements in design enabled articulated road trailers with a carrying capacity of up to ten tons to be loaded transversely on to a standard railway wagon by the tractor driver using the power of his vehicle and three pulleys on the railway wagon. This system was described in our issue of October 26, 1951.

Although the traffic is perhaps small by American standards, the conveyance of road vehicle trailers by rail has developed more in France than in other European countries. The first units were put into service on the French railways in 1933-34. The U.F.R. (Union des Transports Ferroviaires Routiers) types of semi-trailer have been used; their wheels are fitted with supplementary flanged rims. These trailers can be coupled to any type of tractor provided it is fitted with an F.A.R. type of drawbar. The trailers are of either the van, open or tank type; the first two have a tare of 3·2 tonnes and carry a load of six tonnes, and the tank type is three tonnes tare with a capacity of nearly 1,700 gal. The trailers are owned by private undertakings which have signed an agreement with the S.N.C.F. not to use them on the road except as complementary to a rail journey.

When end-loaded on a wagon the supplementary flanged wheels run on rails fixed along the sides of the wagon; these rails are then slightly raised to take the weight off the pneumatic tyres. The trailer is secured by special wedges designed to damp out the longitudinal shocks. An articulated element enables the rails to be extended so that end loading can be made along a rake of flat wagons. Charges are raised either by means of a fixed rate based on the weight of the goods in the trailer plus a surtax, or according to the nature of the goods loaded and the net weight. The possible extension of the road-rail trailer to French West Africa was referred to in our March 19 issue.

KEITH BLACKMAN LIMITED RESULTS.—The directors of Keith Blackman Limited propose a dividend of 12½ per cent on the ordinary shares for the year ended March 31 last. The profit for the year, after deducting all expenses, depreciation, directors' fees and so on, was £276,866, compared with £413,025 in the previous year. To this is added £106,507 (£77,464) brought forward, making a total of £383,373 (£490,489). Taxation provisions and adjustments absorb £137,865 (£236,957), general reserve receives £90,000 (£75,000), dividends on preference shares amount to £6,050 (£5,775), and the proposed ordinary dividend £41,250 (same), leaving £108,208 (£106,507) to be carried forward. The meeting is to be held in London on July 22.

Converting 50-Cycle Locomotives for Higher Voltage

Performance data gathered while modifying S.N.C.F. Annecy line units for 25,000V.

Raising the voltage from 20 to 25 kV. on the Aix-les-Bains to La Roche-sur-Foron 50-cycle line of the French National Railways will bring this section into conformity with the International Union of Railways decision of 1951 on power supply to single-phase electrifications at 50 cycles per second. Reference was made in the Overseas section of our February 19 issue to the stages in which the conversion was effected. Although the essential work on the locomotive and motor coach stock mainly involves modifying the transformer windings, the opportunity has been taken of giving a general overhaul at Oullins shops, near Lyons, to four units which had run considerable mileages since being placed in service.

The locomotives and motor coaches concerned in these overhauls, and their mileages, were as follow:—

Co-Co No. 20001 (formerly 6051) ; 285,830 miles in 35 months.

Co-Co No. 20002 (formerly 6052) ; 154,100 miles in 24 months.

Motorcoach Z9051 ; 153,479 miles in 23 months.

Motorcoach Z9055 ; 136,702 miles in 25 months.

None of the above units had previously had a general electrical overhaul. All except motorcoach Z9055 have 50-cycle motors.

The motors of the Oerlikon locomotive, 20001, were completely dismantled, but it was found that all six commutators were still in good condition for further service. The commutator of one machine was skimmed, but this was in preparation for tests of a modified design of brushholder and not because it was out-of-true to an unacceptable degree. An overhaul was carried out on the a.c./d.c. converter which enables the locomotive to run on 1,500V. d.c. at reduced power. For the most part the work required on other electrical items was only of the kind usual during normal maintenance in the running shed.

Alsthom locomotive 20002, which had not run quite as high a mileage as 20001, underwent inspection and routine maintenance only, its motors not even being dismantled.

In the railcar with Oerlikon equipment, Z9051, no skimming of commuta-

tors was necessary, although in fact, as with the Oerlikon locomotive, one commutator was skimmed in preparation for tests of a modified brushholder. No work beyond cleaning was required on the rest of the electrical equipment.

Rectifier Apparatus

Motorcoach Z9055 has Westinghouse ignitron rectifiers feeding a normal d.c. equipment with resistance and series-parallel control, and the latter was the only part of the installation needing overhaul. Two of the four ignitrons had been replaced in February last year, after 82,642 miles, by slightly higher-capacity tubes of the type to be used on Valenciennes - Thionville locomotives. These replacements were found to have operated with complete satisfaction for 53,058 miles. The remaining apparatus of the rectifier equipment only needed cleaning. Certain modifications are being made, however, so that the motorcoach can be used for service tests of items to be used in the Valenciennes-Thionville locomotives.

Mixed-Traffic Electric Locomotives in Czechoslovakia

Bo-Bo design for heavily-graded lines

An addition to the range of European electric locomotives with the Bo-Bo wheel arrangement and a weight in the region of 80 tons has been made by Czechoslovak industry, the former Skoda (now W. I. Lenin) Works at Pilsen having produced a design of this type for traffic over heavily-graded lines in the Tatra region of the Carpathians. The locomotive operates on 1,500V. d.c. and has a one-hr. rating of 3,260 h.p. It weighs 79 tons.

Performance specification figures quoted in a recent issue of the Netherlands periodical *Spoor-en Tramwegen*

show speeds of 71 m.p.h. on the level and 37.25 m.p.h. up 1 in 67 with a load of 768 tons. The maximum speed of the locomotive is 75 m.p.h. Control is by a servo-operated camshaft, and the cabs are arranged for driving from a seated position with the operating handles on a sloping desk-type panel. Dead man's treadles are fitted.

The pantographs are mounted on a section of the roof which is raised to provide passages for cooling air. Circular porthole-type windows are fitted in the body sides to light the machinery compartments. The livery adopted is

dark to the waistline and with light upper panelling relieved by two dark horizontal bands at window level.

Coal Economies

The "E499" class to which this locomotive belongs is intended to be numerous and will be allocated to the heavy traffic, particularly freight, passing between Hungary, Slovakia, and Russia. Each locomotive is expected to replace between two and three of the steam locomotives at present employed in this region and to effect an annual saving of between 6,000 and 9,000 tons of coal.

GLASGOW SUBWAY.—The Glasgow Corporation Transport Committee is to hold a special meeting to consider the future of the Glasgow Subway. One of the consultants who recently expressed the view that no further consideration should be given to the possibilities of extending or enlarging the system is to be invited. Councillor R. McAllister, Convenor of the Committee, said recently that his own view was that ultimately the Corporation would have to face the question of putting much of the passenger traffic underground. That would require financial assistance from the Government. A wider underground circle, with lines running out to suburbs, could be linked with the present

subway, though passengers might have to change trains at the linking stations. In the preliminary report by the consultants the cost was estimated at £4,000,000 a route mile. The report of Sir William Halcrow & Partners was mentioned in our issue of July 2.

INTERNATIONAL CONTAINER TRANSPORT.—The Ministry of Transport & Civil Aviation announces that as from January 1, 1955, covered containers may be accepted for transport to and about the Continent under Customs seal provided they comply with requirements approved by the Inland Transport Committee of the Economic Commission for Europe and are duly

marked with an approved sign showing that they conform to these requirements. Privately-owned covered containers for conveyance by rail may be submitted for approval to British Railways who are prepared to examine them and, provided the requirements are satisfied, to authorise the use of the sign prescribed for the container. Privately-owned containers forwarded by road, or by steamship services not associated with British Railways, can be examined by the Ministry. Further information on this point may be obtained from the Director, International Inland Transport Branch, Ministry of Transport & Civil Aviation, Berkeley Square House, London, W.1.

Electric Rolling Stock for Manchester-Glossop Service

Equipment designed to operate over wide range of line voltage fluctuation



Train formed of two of the new Manchester-Glossop three-car units

EIGHT three-coach multiple-unit sets have been provided for working the new electric service between Manchester London Road and Glossop, details of which were given in our June 18 issue. Each set consists of a 1,500-V. d.c. motor coach, trailer, and driving trailer, and may be operated singly or coupled to another to form a six-coach train.

The complete electrical equipment for the new rolling stock was supplied by the General Electric Co. Ltd. The motor and trailer coaches were built by the Metropolitan-Cammell Carriage & Wagon Co. Ltd., and the driving trailers by the Birmingham Railway Carriage & Wagon Co. Ltd. Principal dimensions and passenger capacities of the new stock are tabulated below:—

	Motor coach	Trailer coach	Driving trailer
Length over body	60 ft. 4½ in.	55 ft. 0½ in.	55 ft. 4½ in.
Width over side panels	9 ft. 3 in.	9 ft. 3 in.	9 ft. 3 in.
Height to top of roof	12 ft. 4½ in.	12 ft. 4½ in.	12 ft. 4½ in.
Height to top of pantograph	13 ft. 1 in.	—	—
Bogie centres	41 ft. 3 in.	38 ft. 0 in.	38 ft. 0 in.
Bogie wheelbase	8 ft. 6 in.	8 ft. 0 in.	8 ft. 0 in.
Weight equip- ped but unladen	50·6 tons	26·4 tons	27·5 tons
Number of passengers (first class)	—	24	—
Number of passengers (third class)	52	38	60

The three types of coach are of all-steel construction and carried on swing bolster bogies. Bodies are of the open saloon type with transverse and longitudinal seats. On each side of each coach two 4 ft. 6 in. sliding doors are provided, with ample adjacent floor space for standing passengers. The doors are equipped for electro-pneu-

matic control from the guard's position, or permissive passenger operation.

Operating Conditions

Heavy gradients between Manchester and Hadfield, combined with the need to operate over a wide voltage range because of freight working on the main line with locomotives equipped for regenerative braking, impose service conditions which are severe in comparison with those of many suburban lines. The equipment is designed to function satisfactorily up to 1,800 V. Average voltage is 1,400, and the minimum voltage 1,000, but the equipment will operate satisfactorily on a voltage as low as 750.

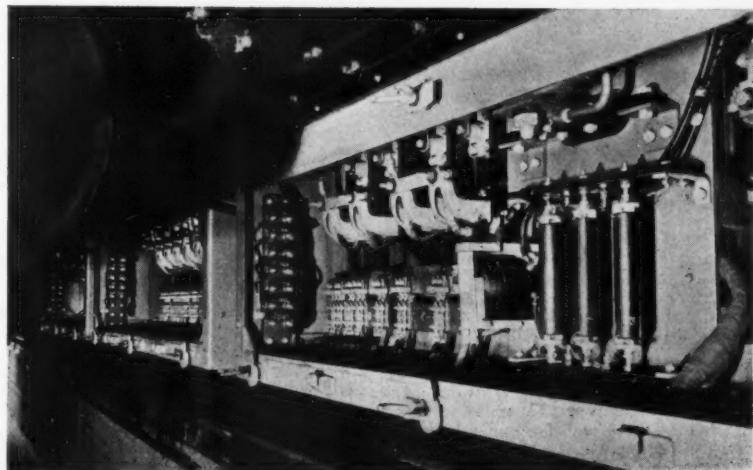
Each motor coach is powered by four axle hung traction motors arranged in two groups of two motors permanently connected in series, so that the motors individually do not operate above half line voltage. The groups are under series/parallel control with bridge transition. Acceleration is automatic, and is set normally for 1·24 m.p.h./sec. Balancing speeds of a train unit, empty, on the level are approximately 58 m.p.h. in full parallel and 67 m.p.h. in parallel weak-field. The safe maximum speed is 70 m.p.h.

The electro-pneumatic contactor control equipment is mounted below floor level on one side of the underframe in three cases with removable covers at front and rear for easy accessibility. The main resistances and battery are mounted on the other side of the underframe. A motor-generator set with an output of 6 kW. at 52 V. is suspended from the underframe by resilient mountings.

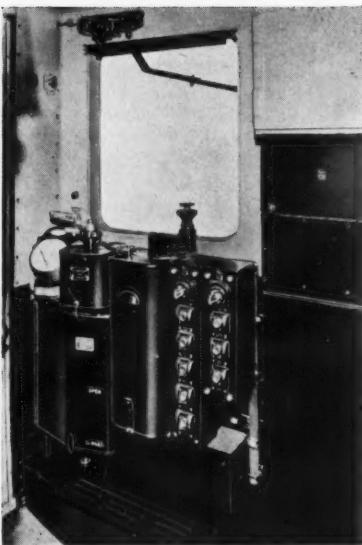
Special attention has been paid to smooth acceleration; there are 10 resistance steps in series and four in parallel. Three continuous running notches can be selected by the master controller—full series, full parallel, and full parallel weak field. If the motorman selects automatic acceleration up to weak-field, an excessive current peak is avoided in passing to that notch from full parallel by using a second accelerating relay having a lower setting.

In addition to the continuous running notches, a notch for use when shunting and coupling up is provided before automatic acceleration begins.

Overload and fault protection is given by line switches in conjunction with



Rear of main underframe-mounted equipment cases with their covers removed to give access from inspection pit



Motor coach driving cab

relays and resistance, one line switch being arranged to insert resistance in the fault circuit before the current is broken by the opening of two more switches in series. By this means the maximum possible breaking capacity is available at the train, and the substation or feeder breakers will rarely, if ever, be called upon to clear a vehicle fault.

The reverser is an electro-pneumatic drum switch. A hand-operated drum switch enables either pair of motors to be cut out in emergency. Under these conditions a train consisting of one or more units may be operated for a limited period to clear the line and avoid delay. Contacts associated with the cut-out switches modify the control circuits so that the train as a whole is prevented from operating in series, although series combination remains operative for acceleration of the sound train units. Should a serious control fault develop, the control circuits may be isolated by a multi-point cut-out switch which permits the remainder of the train to be driven from the master controller and associated controls at either end of the faulty unit.

No-volt protection is afforded by a no-current relay. This is set by a L.T. shunt coil controlled by interlocks on the H.T. indicator relay. The coil is cut out on all except the "off" and first steps, and the relay retained by a series coil carrying motor current. Any failure of line voltage will at once operate the relay and power will be cut off. On restoration of the line voltage the equipment will notch up automatically if the motorman has not switched off.

The four-pole series-wound traction motors are arranged for self-ventilation from intake louvres mounted high up on the sides of the coach. The sleeve type suspension bearings are oil-lubricated, and the armatures, carried in grease-lubricated roller bearings, can be

removed from the motor frames without opening up the bearing assemblies so that there is no fear of dirt entering the housings during this operation. Ratings at 700-V, based on B.S. 173/1941, are as follow:—

Continuous full field :	133 h.p., 153 amp., 985 r.p.m.
Continuous weak field :	157 h.p., 185 amp., 1,290 r.p.m.
1-hour full field :	185 h.p., 217 amp., 815 r.p.m.
1-hour weak field :	210 h.p., 245 amp., 1,055 r.p.m.

Auxiliary Services

The H.T. motor and L.T. generator of the motor-generator are combined in a single machine having two roller bearings only. The set is totally enclosed, with an external fan at the L.T. end which blows air along the outside of the ribbed frame. The motor is a two-pole compound-wound machine with a shunt field fed from the 52-V. supply; the generator is a four-pole machine without interpoles. A carbon pile regulator controls the L.T. voltage. The battery consists of 33 Nife cells, type ES12, of 125 Ah. capacity at the 5-hr. rating.

To prevent failure of either the battery or M.G. set from affecting the running of the train, all master control circuits and a section of the lighting circuit are fed from the battery side of the battery/L.T. generator paralleling contactor. Remaining lighting circuits are energised direct from the L.T. generator to avoid undue demand on the battery in an emergency. In addition, essential power and brake control circuits may be energised from another train unit supply in the event of an abnormal emergency.

The passenger compartments of the motor, trailer, and driving trailer coaches are provided with 22, 26, and 24 60W. lamps, respectively. Passenger lights throughout any train make-up are under the control of the guard. A changeover switch and plug enable most of the lights to be fed from a shed

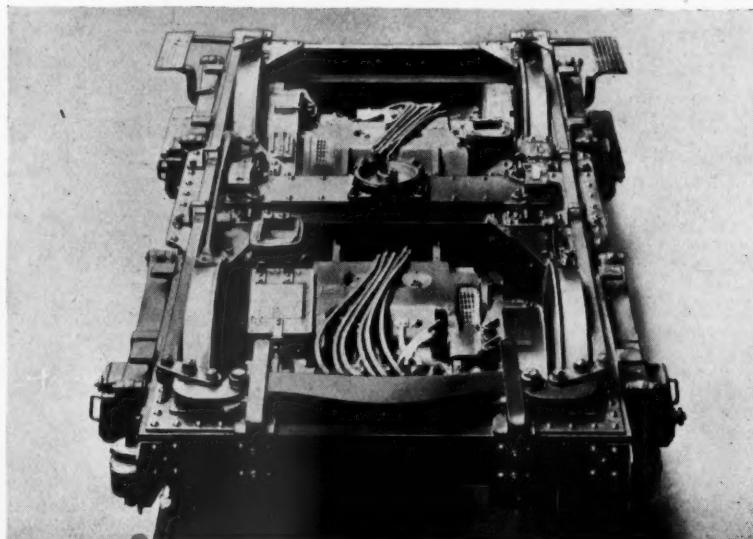
supply during the cleaning and maintenance of the rolling stock.

A 1,500-V. feed is taken to the train heaters and is divided into two circuits, one feeding two circuits of seven heaters in both the motor coach and driving trailer, and three circuits in the trailer; while the other supplies one circuit in the motor coach and one in the driving trailer. There are 21 400W heaters in each vehicle, arranged in three circuits of seven in series. The contactor controlling the feed to the greater number of heater circuits is governed by a thermostat in addition to guard's push-button operation, so that the heating of passenger compartments is virtually thermostatically controlled.

Westinghouse air brakes with electro-pneumatic control are fitted. The compressor is driven by a 1,500-V. series motor fed through a protective resistance which is also common to the motor of the M.G. set. Both machines have individual fuses, and a special high-duty fuse functions as the main protection for the whole of the 1,500-V. auxiliary circuits.

Pantograph Design

The single-pan lightweight pantograph is designed so that the pan can follow small line irregularities without moving the main frame. It is raised by admitting air to a central cylinder so that the over-riding down spring is compressed and the up springs are free to operate. Ball bearings are used extensively in the joints, and all are shunted by copper braids. Lubrication is by grease nipples, and the pan is designed to carry any of the special lubricating greases or paints. Two transverse torque bars carrying the lever arrangement by which the pan is sprung to the apex of the pantograph frame ensure that the pan always remains parallel to the mounting plane, which has the effect of obtaining better clearance in tunnels.



Traction motors mounted on bogie

Self-Regulating Alternators

Brush Amplidex system of control

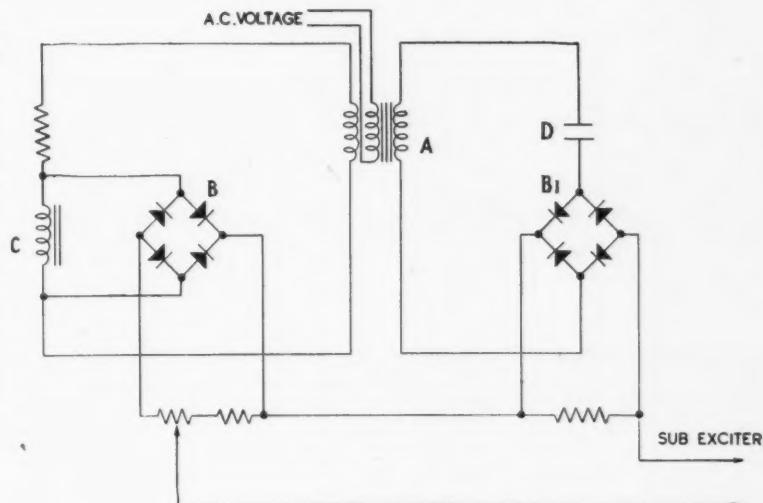
THE Brush Electrical Engineering Co. Ltd. has developed a self-regulating alternator with Amplidex system of control, for which a provisional patent No. 1646/53 has been granted. The Amplidex control system is compact and static, as a result of which it is claimed that setting up difficulties are obviated, making the machines ideal for working in unattended situations.

The control system, it is stated, can be applied to an alternator of standard and well proved construction, and has therefore the normal salient pole construction with large air gaps and normal proportions of field and armature ampere turns just as if it were required for use with an ordinary automatic voltage regulator. It has therefore the same capacity for dealing with leading power factor loads.

Alternator Excitation

Alternator excitation is obtained from an amplifying dynamic excitation unit, which consists of a main exciter to supply the alternator field current, and a small sub-exciter, the two being mounted in tandem in a single frame. To control the alternator from the small power output of the detector circuit a high value of amplification is required, and at the same time a rapid rate of response. For this purpose the two exciters are connected in cascade.

The field system of the main exciter is laminated and compensated, the field laminations being similar to induction motor stator laminations, but with certain teeth removed to form commutating zones. The stator is wound with



Simplified diagram of central circuit

concentrated excitation windings, and a fully distributed compensated winding. The sub-exciter is a simple separately excited machine and has also a laminated field construction.

Compensation is required to enable the exciter to operate with comparatively high armature loading and low magnetising power, this combination resulting in high amplification and quick response. The compensation winding also ensures good commutation during the field forcing required to restore the alternator voltage quickly on sudden

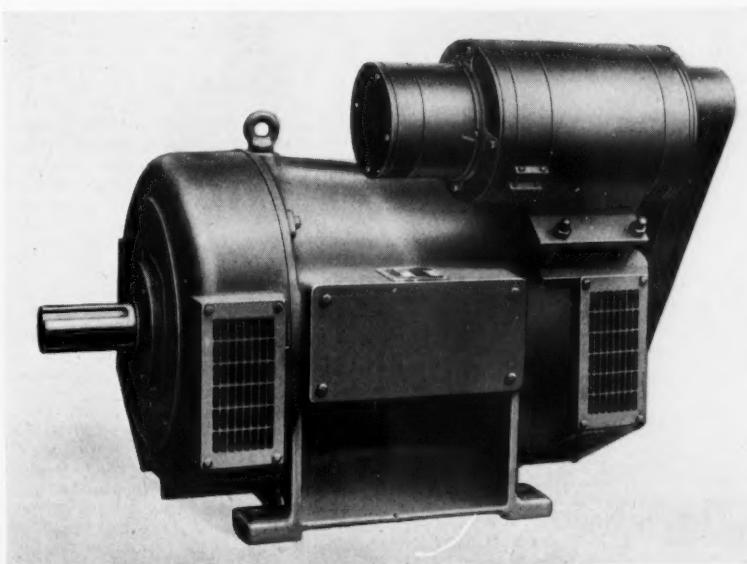
changes of load. A damping circuit is included so that the maximum recovery rate can be maintained with stability.

Amplidex Control System

Amplidex control is achieved with the amplifying dynamic excitation unit and a simple voltage detection circuit; the system is shown in the diagram. The alternator voltage is fed through an isolating transformer (A) to two bridge rectifiers (B, B1), one shunted by a saturated reactor (C), and the other with a series capacitor (D). The outputs from the rectifiers are applied to two resistances in series, and the difference in voltage across these two resistances supplies the error signal to the sub-exciter. A small rheostat is provided for setting the alternator voltage.

The saturated reactor holds the voltage constant across one rectifier but the voltage of the other varies in direct proportion to the alternator voltage. When the two voltages are equal no current will be supplied to the exciter field. If the alternator voltage varies the exciter field current will vary in magnitude dependent on the strength and direction of error signal, thereby rapidly correcting terminal voltage to its set value.

The reference voltage provided by the saturated reactor is sensitive to frequency, but so also is the current in the capacitor fed by the rectifier. These two effects are thereby cancelled out, and thus no variation due to frequency changes results. Over the normal range of engine governing, the balance point will remain unchanged, in fact the frequency can be adjusted from 50 to 60 cycles with only a small change in voltage.



Brush self-regulating alternator with Amplidex control

Brush self-regulating alternators with Amplidex control give a voltage regulation of $\pm 2\frac{1}{2}$ per cent from cold to hot—at variable power factors—no load to full load, allowing for the usual 4 per cent engine speed variation. When full load at 0·8 power factor is thrown off, the voltage rise is arrested in less than 0·2 of a second and voltage overshoot is within 20 per cent of normal voltage.

Throwing off full-load unity power factor is less onerous and very little dis-

turbance of the voltage occurs. Conditions for throwing on load are similar and voltage variations occur of the same order. Within the limit of full rated kVA., voltage recovery is obtained in one second or less for any condition of load change. The alternator is capable of taking heavy load surges with a minimum voltage disturbance and without loss of control.

This system will operate over a wide voltage range, such as 380/440 V. and

a frequency range of 50/60 cycles. If necessary a series parallel stator connection may be provided to give dual voltage when required. In this case the connections to the control circuit remain unchanged so that both voltage ranges are covered by the same rheostat. The scheme permits delivery of full rated output at either voltage. The alternator will operate satisfactorily in parallel or with alternators controlled by conventional automatic voltage regulators.

Train Working for Tube Track Renewals

Locomotives operating from track supply or batteries



Battery locomotive with G.E.C. electrical equipment hauling permanent way train during track renewals on Northern Line, London Transport

PERMANENT way renewals on London Transport tube railways necessitate running trains conveying materials, rails, and tools at times when the power is normally switched off; but arrangements are made to maintain a supply for working the Permanent Way Department trains from their daytime stabling points to the station adjacent to the sections where work is in progress. Subsequent train movements must be made without taking current from the live rail, the supply being switched off; the locomotives which haul the trains therefore are designed for operation either from normal track supply or from batteries.

Thirteen equipments for London Transport battery locomotives used on these duties have been supplied by the General Electric Co. Ltd. The illustration shows one of them on a permanent way train during renewal of the concrete roadbed on the Northern Line between London Bridge and Bank.

The locomotive control system provides series, series-parallel, and parallel

connection of the four motors, with 28 notches, all selected manually, to permit very fine adjustment of tractive effort for the wide range of speeds required with varying loads. The resistances are specially rated for running at speeds as low as 2 m.p.h. A single controller handle effects the resistance notching and the transitions between the different motor groupings.

Two Locomotives Used

Two locomotives are used on each train, one being uncoupled in the station nearest the work, where it waits to haul the wagons and the second locomotive back to depot when work is completed, as propelling of the trains is not permitted.

When new concrete is being laid a concrete mixer is carried in one of the wagons and electrically operated from the locomotive batteries. New rails are hauled to site on 75-ft. wagons designed to carry eight rails side by side in 300 ft. continuously welded lengths. Other materials are usually carried in trains

which consist of three or four flat wagons 45 ft. in length.

During the day the permanent way trains are stabled in sidings at surface stations conveniently situated for access to the scene of work. The limitation on the period available for work makes it important to minimise the time occupied in running to and from site, which has necessitated the flexible operating characteristics of the battery locomotives.

LYONS-MARSEILLES ELECTRIFICATION.—In a press notice recently issued by the South-Eastern Region of the French National Railways it was stated that the electrification of the Marseilles line south of Lyons would probably not take place until after the electrification of the Paris-Lille line; this would mean the deferment of the Lyons-Marseilles scheme for some four years. This statement, indicating the possible electrification of the Paris-Lille line, has not been confirmed elsewhere.

ELECTRIFICATION IN SOUTHERN ITALY.—Allocations have been recently made to cover the continuance of the electrification of the following Italian State Railways lines: Termini Imerese-Palermo, 23 miles, single track (the westernmost section of the Messina-Palermo main line), lire 650,000,000; Venice-Padua, 23 miles, double track, and Padua-Bologna, 76 miles, double track, together lire 1,600,000,000; Foggia-Bari, 76 miles, single track, including modernisation of Foggia Station, lire 188,680,000; Pescara-Foggia, 68 miles, single track, including the modernisation of the stations between Pescara and Termoli, lire 167,920,000.

FUTURE OF FESTINIOG RAILWAY.—An appeal for funds to enable the Festiniog Railway Society to recondition the line, and to provide working capital, was made recently. The society hopes to resume passenger services on the narrow gauge, 13-mile line which runs from sea-level at Portmadoc up to Blaenau Ffestiniog, passing through picturesque scenery. The line fell into disuse some years ago, but a railway enthusiast has now acquired a controlling interest in the company and is supporting the society's scheme. Those interested should write to Mr. F. Gilbert, 45, Great North Road, Brookmans Park, Herts.

Degreasing Locomotive Wheel Sets

New equipment installed at Derby Locomotive Works



Degreasing equipment installed at Derby Locomotive Works. The machine is shown in the operating position with the roller shutter door closed

MUCH attention has been given to the design of degreasing and washing equipment in recent years and this type of plant now tends to be treated as a necessity in railway workshops and the engineering industry as a whole. In so far as railway repair shops are concerned it is not uncommon for cleaning boshes to be installed which are capable of taking the whole of the locomotive frame after stripping.

The advantages obtained from the use of such equipment are obvious, in that workshops are kept in a much cleaner condition than would otherwise be possible, the elimination of grease from the workshop floor thus assisting materially in the reduction of accidents, in addition to its being a considerable labour-saving asset. A locomotive wheel-washing plant has recently been installed at the London Midland Region Locomotive Works at Derby; it was designed and manufactured by Edward Curran Engineering Limited.

The machine is supervised during its operation by a single operator and it is said that the equipment is capable of washing a pair of locomotive wheel sets in some 10 minutes from loading to the complete washing. It is stated that three men were previously employed more or less continuously on this work; the saving in labour is thus considerable.

Machine Capacity

The washing machine installed at Derby is capable of dealing with standard-gauge, engine wheel sets of from 3 ft. to 7 ft. 6 in. dia. Any variation or crank design can be accommodated, including axles fitted with roller-bearing

axleboxes provided the overall length over the crankpins does not exceed 7 ft. 9 in. The machine is approximately 16 ft. 7 in. long by 14 ft. 6 in. wide by 12 ft. 5 in. in height.

Machines can, however, be supplied in sizes to suit locomotive, carriage, and wagon wheels for different gauges. The heating can also be arranged by steam coils or gas-fired tubes fixed in the sump. During the washing process the machine is totally enclosed by roller shutter doors operated by a separate

driving unit, the doors being automatically locked in the open or closed position by switches.

Two pressure pumps are fitted, each driven by a 10-h.p. motor and having a nominal capacity of 400 gallons a minute each, against a 50-ft. head. The electrically-operated driving gear for rotating the wheels during spraying has a three-to-one variable speed unit incorporated. Adequate sludge removal hatches are fitted for taking away the sludge.

Vapour is dissipated to atmosphere through a chimney from a collecting point at the side of the machine. Curran Cleaner No. 1 is recommended, the material being dissolved in water in the sump and sprayed at a temperature of 80-85° C. The equipment includes pump pressure gauges and dial thermometer. The wheels are secured to the revolving mechanism by a tubular frame.

ALUMINIUM DEVELOPMENT ASSOCIATION, DIRECTORY OF MEMBERS.—The 1954 edition of the Directory of Members, issued by the Aluminium Development Association, 33, Grosvenor Street, London, W.1, gives the names of members of council, as well as brief particulars of the constitution and objects of the Association. Also included are the names and addresses and other particulars of its member companies, including, where applicable, associate or subsidiary companies. In each case a brief description is given of their activities and products, indexed under aluminium and aluminium alloys.



The roller shutter doors opened, showing the method of securing the wheel sets during cleaning

British Railways Cafeteria Cars



Pantry in cafeteria car of a type being used for special party train traffic, including the "Starlight Specials"



Self-service installation. This car has a twin bar for service of hot and cold drinks and light refreshments; seating accommodation for eleven passengers is provided at each end

RAILWAY NEWS SECTION

PERSONAL

Mr. A. C. Stockley has been appointed Chief Electrical Engineer, Victorian Railways, Australia, succeeding Mr. H. P. Colwell. Mr. D. L. MacDonald becomes Assistant Chief Electrical Engineer.

We regret to record the death in Queensland, Australia, of Dr. William Rowatt Horn, D.Sc., formerly Director of Civil Engineering to the Railway Board of India.

Mr. H. P. Colwell, Chief Electrical Engineer, Victorian Railways, Australia, who, as recorded elsewhere in this issue, has retired, has had a distinguished railway career. In 15 years he rose from a first-year apprentice at Newport Workshops to be the head of his branch. He went abroad in 1925 and 1937 to study the latest developments in railway operation, particularly electrification, and power station operation, his travels taking him to the United Kingdom, the continent, and the United States of America. In 1949 he was a member of the Victorian Railway's mission to South Africa to study main line electrification in its relation to the Gippsland line project.

Mr. Frank Gilbert, O.B.E., Chief Officer (Staff), British Transport Commission, who is the Chairman of the Headquarters Committee on First Aid Matters, has been admitted to the Venerable Order of the Hospital of St. John of Jerusalem in the Grade of Officer (Brother).

Mr. T. R. V. Bolland, Assistant to District Traffic Superintendent, Redhill, Southern Region, British Railways, has been appointed Assistant District Traffic Superintendent, Woking.

Mr. J. H. Brown, Indoor Assistant, Operating Department, Southern Region, British Railways, has been appointed Assistant to Operating Superintendent, Waterloo, with effect from June 22, 1954.

Mr. E. H. Evans, Deputy Chief of Freight Rates & Charges Section, Commercial Superintendent's Office, Waterloo, Southern Region, British Railways, has been appointed Freight Rates & Charges Assistant in the same Office.

Mr. A. E. Flaxman, District Commercial Superintendent, Worcester, Western Region, British Railways, who, as recorded in our June 18 issue, has been appointed Assistant to the Commercial Superintendent (Terminals & Cartage) at Paddington, joined the service of the Great Western Railway in 1917 in the Office of the Chief Goods Manager at Paddington. In 1922 he transferred to the Engineer's Department and later to the Office of the General Manager, returning to the Chief Goods Manager's Department in 1938. Mr. Flaxman became Chief Clerk at South Lambeth Goods Depot in 1942, and the following year was appointed Goods Agent at Oxford. He returned to London in 1944 as Cartage Superintendent at Paddington being appointed Assistant Goods Agent at Paddington in 1945, and Goods Agent at South Lambeth in 1946. In July, 1947, he transferred to Birmingham as Assistant District Goods Manager, returning to Paddington the following year in a similar capacity. He became Goods Agent at Paddington in 1949, and District Goods Superintendent at Reading in 1950. Mr.

Flaxman moved to Worcester in September, 1953, where he took up the appointment of District Commercial Superintendent, which post he has now vacated upon taking up his new position.

Mr. J. A. Martin has been appointed Regional Ambulance Secretary, Western Region First Aid Movement, British Railways. Mr. Martin was Assistant Divisional Ambulance Secretary to the Chester Division from 1924 to 1929, when he became Divisional Secretary, and continued in that office until his appointment as

Burton, Director-General of Mechanical Equipment in the Ministry of Supply, 1940-45. During the 1914-18 war, Sir Geoffrey Burton served with the Royal Engineers in Gallipoli, Egypt and Palestine. After demobilization he joined the Metropolitan Carriage Co. Ltd., of which he was General Manager from 1927 to 1930.

We regret to record the death on July 3, at the age of 53, of Mr. William Butterworth, A.M.I.C.E., an engineer on the staff of the Civil Engineering Department of the Crown Agents for Oversea Gov-



Mr. H. P. Colwell
Chief Electrical Engineer, Victorian Railways,
who has retired

Assistant Centre Ambulance Secretary in 1942, the post being re-designated Assistant Regional Ambulance Secretary in 1948. He has been a member of the Standing Committee of Railway Ambulance Centre Representatives since its formation in 1945, and has acted as Secretary since 1952. Mr. Martin was awarded the Vellum Vote of Thanks of the Order of St. John of Jerusalem in 1939, and was admitted to the Order in 1943.

COASTAL SHIPPING ADVISORY COMMITTEE

The Minister of Transport & Civil Aviation, the Rt. Hon. Alan Lennox-Boyd, M.P., has been informed by the British Transport Commission that it has nominated Mr. David Blee (Chief of Commercial Services), Mr. C. K. Bird (Chief Regional Manager, Eastern Region, British Railways), and Mr. J. R. Pike (Chief Rates & Charges Officer, Department of Chief of Commercial Services), to the Coastal Shipping Advisory Committee, set up under Section 71 of the Transport Act, 1947, to replace Mr. T. F. Cameron (Chief Regional Manager, Scottish Region, British Railways), Mr. C. P. Hopkins (Chief Regional Manager, Southern Region, British Railways), and Mr. D. Murray (Chief Freight Officer, Department of Chief of Commercial Services).

We regret to record the death on July 2, at the age of 61, of Sir Geoffrey Duke

ernments & Administrations. Mr. Butterworth joined the service of the Crown Agents in 1926.

Mr. J. S. McCormick, Stores Superintendent to the G.N.R.(I), who has retired from the service of the Great Northern Railway Board, joined the G.N.R.(I) in September, 1904. He was attached to the Audit Office Section of the Accountant's Department in Dublin until 1912, when he was transferred to the Accountant's Office. In 1925 he became Stores Inspector to the Company, and, in July, 1939, was promoted to the position of Stores Superintendent at Dundalk.

Mr. C. B. Armstrong, who has been Chief Clerk to the Secretary of the G.N.R.(I) in Dublin since July, 1926, has been appointed Stores Superintendent to the Great Northern Railway Board at Dundalk. Mr. Armstrong joined the G.N.R.(I) in 1910, and was in the Accountant's Office for some time before being appointed to the Secretary's Office in Dublin in April, 1911. He was transferred to the Secretary's Office in Belfast the following year, and remained there until his appointment as Chief Clerk to the Secretary in 1926.

Mr. F. C. Wallace, Secretary, Great Northern Railway (Ireland), since 1926, retired on June 30, from the service of the

*Mr. P. K. M. Carey*Appointed Secretary/Solicitor,
G.N.R. Board, Ireland*Mr. L. W. Cox*Appointed Divisional Operating Superintendent,
Derby, L.M. Region*Mr. K. R. M. Cameron*Appointed District Motive Power Superintendent,
Edinburgh, Scottish Region

Great Northern Railway Board. He joined the G.N.R.(I) on February 23, 1899, and was attached to the Secretary's Office in Belfast. He became Chief Clerk to the Cashier in Dublin in 1904, and, in September, 1908, was promoted in the same position to the Secretary's Office in Belfast. In 1919 he was appointed Chief Clerk to the Secretary in Dublin, and, on July 1, 1926, he became Secretary to the company. Mr. Wallace has been 55 years in the service of the G.N.R.(I), and for the past 28 years has been its Secretary.

Mr. P. K. M. Carey, LL.B., who has been appointed Secretary/Solicitor to the Great Northern Railway Board, was educated at St. Stephen's Green School and Trinity College, Dublin. He had been in private practice as a solicitor before his appointment as Assistant Solicitor to the G.N.R.(I) Company on May 1, 1941. In 1943 he became Solicitor, and he took up his new duties on July 1.

Mr. L. W. Cox, Assistant (Freight Services) Operating Superintendent's Department, London Midland Region, British Railways, who, as recorded in our July 2 issue, has been appointed Divisional Operating Superintendent, Derby (London Midland Region), was educated at Dean Close, Cheltenham, and began his railway career on the former Midland Railway as a junior clerk in 1919. After experience in passenger and goods station working as a relief clerk, he passed through various sections of the Derby Staff Office and joined the Shunting Analysis Commission at Derby. After a period as District Signalmen's Inspector at Westhouses (Derbyshire) he took up a position on the Shunting Analysis Commission centred at Manchester (Victoria). In 1923, Mr. Cox was appointed District Signalmen's Inspector, Wakefield, and, in 1935, Assistant District Controller, Leicester. Later in that year, he took up similar position in Lancaster (Western), and, in 1938, became Assistant District Controller, Birmingham (Western). Later in 1938, Mr. Cox was appointed Head Office Inspector, New Works & Signalling, in the Divisional Superintendent's Office, Crewe. During the first months of the recent war he dealt with military

traffic as a member of the Divisional Superintendent's Emergency Section, Crewe, and later became Assistant Divisional Passenger Controller in the same office. In February, 1943, Mr. Cox was transferred temporarily as District Controller, Liverpool Lime Street, and was appointed permanently to that position in July, 1944. On the re-organisation of L.M.S. District Control Areas in 1945, he became District Operating Manager, Liverpool Lime Street. Mr. Cox became District Operating Superintendent London (Western) in September, 1947, and was appointed Assistant (Freight Services) Operating Superintendent's Department in March, 1953, the position he now leaves for his new appointment at Derby.

Mr. K. R. M. Cameron, District Motive Power Superintendent, Kentish Town, London Midland Region, British Railways, who, as recorded in our June 18 issue, has been appointed District Motive Power Superintendent, Edinburgh, Scottish Region, graduated B.Sc. with First Class Honours in Mechanical Engineering at Glasgow University, and obtained the diploma of the Royal Technical College with Distinction in Mechanical Engineering Design. Mr. Cameron joined the former L.M.S. Railway at St. Rollo Works in 1925, and, after serving in the various shops and the drawing office, was appointed Assistant Foreman at the Locomotive Erecting Shop, Crewe, in 1931. He was transferred to Derby as Technical Assistant, Central Order Office, in 1934, and, a year later, he returned to Scotland as Maintenance Assistant to the Superintendent of Motive Power, Glasgow. In 1939 he took charge of Carstairs Motive Power District, but was called to H.M. Forces on the outbreak of the war. On his return from overseas in 1945, Mr. Cameron was appointed District Locomotive Superintendent, Perth, and, in 1946, took up a similar position at Corkerhill, Glasgow. With the reorganisation consequent on the formation of the Scottish Region of British Railways, he was re-designated District Motive Power Superintendent, Ayr, on January 1, 1949. Later that year Mr. Cameron became District Motive Power Superintendent, Gorton, Eastern Region, and, in 1950, he went to

Kings Cross as District Motive Power Superintendent. Subsequently he moved to the Motive Power Superintendent's Office, Liverpool Street, from which position he moved to Kentish Town, London Midland Region. Mr. Cameron was commissioned in the Supplementary Reserve of Royal Engineers in 1931, and holds the rank of Lieutenant Colonel in the reconstituted Royal Engineers Supplementary Reserve, commanding No. 80 Railway Workshop Regiment, R.E.S.R.

Capt. H. M. Johnson (130252), R. Tks., has been awarded the Efficiency Medal (Territorial).

Mr. R. W. Foxlee, C.M.G., C.B.E., M.I.C.E., formerly Engineer-in-Chief to the Crown Agents, and Engineering Adviser to the Secretary of State for the Colonies, has joined the firm of Coode & Partners, Chartered Civil Engineers, as a Consultant as from July 1, 1954.

Mr. A. E. Grimsdale, as correctly recorded in the biographical notes in this section of last week's issue, has been appointed a Director of Metropolitan-Vickers Electrical Export Co. Ltd., and not, as in the caption to the photograph accompanying the notes, a Director of Metropolitan-Vickers Electrical Co. Ltd.

INSTITUTE OF TRANSPORT

The following Officers and Members of Committee of the Metropolitan Section of the Institute of Transport have been elected for the year 1954-55:—

Immediate Past Chairman

Mr. F. Gilbert (British Transport Commission).

Vice-chairmen

Messrs. W. C. Collins (British Transport Commission), C. F. Klapper (*Modern Transport*), E. G. Whitaker (Lever Bros. Ltd.) Committee

Messrs. A. C. B. Pickford (Western Region, British Railways), S. E. Parkhouse (British Transport Commission), S. G. Hearn (London Midland Region, British Railways), B. H. Harbour (London Transport Executive), J. L. Willoughby (British Road Services), D. Robertson (British Transport Commission), G. F. Stedman

(Ministry of Transport), Alex. J. Webb (London Transport Executive), D. H. Foulds (British Road Services), W. R. Robertson (London Transport Executive), F. D. M. Harding (Pullman Car Co. Ltd.).

The late Mr. H. Stroud, whose death was recorded in our June 25 issue, had been Conductor in charge of the "Golden Arrow" Pullman train since the reintroduction of the service in 1946. Mr. Stroud, whose Pullman Staff Index Number was 1, was born in Surrey on December 22, 1892. He entered the service of the Pullman Car Co. Ltd. on August 9, 1921, and, throughout his service, he worked on Continental Boat Trains, first as an Attendant, and later, from 1937, as Conductor. During the recent war he remained with the company, having charge of the leave boat train until Dunkerque. He later became Conductor on the special train run in connection with the B.O.A.C. services to Hurn. When the "Golden Arrow" was reintroduced in 1946 Mr. Stroud took charge, and made the daily journey from Victoria to Dover and over to Calais, where he made contact with the Wagons Lits officials, and collected the inward seating plans for the Pullman Car Company. When the outward "Golden Arrow" was re-timed in 1951 Mr. Stroud had to abandon the train on the down journey, to travel instead on the 11 a.m. in order to cross to Calais on the "Invicta" for the return journey of the "Golden Arrow" passengers. On the return to Dover each day, he assumed control of the inward "Golden Arrow," and this was his daily run. Mr. Stroud was greatly respected in the Pullman Car Company, and was known to many thousands of passengers for his quiet efficiency and unfailing helpfulness. He died on June 16 after a short illness.

Mr. W. Haynes and Mr. E. W. Spalding have retired from the board of Ruston & Hornsby Limited with effect from June 30.

Mr. W. C. Bennett, Purchasing Manager of Standard Telephones & Cables, Limited, retired on June 30, after 44 years of service. His successor is Mr. S. F. Monk.

Dr. S. Whitehead, Director of the British Electrical & Allied Industries Research Association, has been elected Chairman of the Committee of Directors of Research Associations.

Mr. H. Smith, A.M.I.Mech.E., has been appointed Development Engineer for Tyres, Dunlop Rubber Co. Ltd. Mr. M. J. Bartle, A.M.I.E.E., becomes Overseas Factories' Engineer.

Following the acquisition of the equity in the English Steel Corporation by Vickers Limited and Cammell Laird & Co. Ltd., Lt.-General Sir Ronald Weeks, Chairman of Vickers Limited, and Mr. R. W. Johnson, Managing Director of Cammell Laird & Co. Ltd., have rejoined the board.

Additional appointments to the board are Mr. J. C. Mathier, Chairman of Cammell Laird & Co. Ltd., Colonel A. T. Maxwell, Director of Vickers Limited, and Mr. E. J. Waddington, Director of Vickers-Armstrongs Limited. Other Directors who retain their seats on the board of the corporation are Mr. F. Pickworth, Managing Director, Dr. H. H. Burton, Dr. C. J. Dadswell, Mr. B. Gray, Mr. W. D. Pugh, and Mr. R. G. H. Taylor. Sir Ronald Weeks has resumed the chairmanship of the corporation.

Alderman P. A. Sanders, C.B.E., D.L., M.I.Mech.E., Deputy Chairman of Davey,

Paxman & Co. Ltd., and a Director of other companies, was created a Knight Bachelor in the Birthday Honours List.

Mr. W. H. Williams, a Director of the General Electric Co. Ltd., and Manager of the Osram Lamp department, has decided to retire. He will remain in an advisory capacity until the end of the year. Mr. A. E. Page took over the full management of the department as from July 1.

Sir George H. Nelson, Chairman of the English Electric Group, (English Electric Co. Ltd., the Marconi companies, and D. Napier & Sons Ltd.), has just completed a 20,000 miles tour of Central and South America and the Caribbean area, where he has been during the past 14 weeks. He has now returned to London by air.

We regret to record the death on June 29, at the age of 75, of Dr. J. H. Dobson, D.S.O., Chairman & Managing Director of Dowson & Dobson Limited, and one of the most distinguished engineers in South Africa. Dr. Dobson was born in England at Crewe on October 12, 1878, and served an apprenticeship at the Crewe works of the London & North Western Railway. He was President of the South African Institution of Electrical Engineers in 1910.

We regret to record the death on July 3, at the age of 68, of Mr. A. E. Shinn, formerly General Manager for Staff Matters of Thos. Cook & Son. Mr. Shinn joined Cook's in 1903. He retired as a result of ill-health in 1948.

Tourist Traffic to Britain Maintained.—The British Travel & Holidays Association announces that between January and May nearly 260,000 overseas visitors arrived in Britain, compared with 261,600 in the first five months of Coronation year, a decrease of 0.7 per cent. The number of visitors in May showed a decrease of 11 per cent compared with the figure for May last year, but an increase of 28 per cent over May, 1952. A spokesman of the Association said that the decline in numbers was to be expected. The arrival figures for May in Coronation year were exceptional. The total number of visitors in that month exceeded those of May, 1952, by 37 per cent. In spite of the apparent decline this year, the actual trend was upwards, and they were confident that 1954 would be a record year for tourist traffic to this country.

Improvement Scheme at Garston Docks.—The Docks & Inland Waterways Board of Management announces that, with the approval of the British Transport Commission, the craneage and quay layout at Stalbridge Dock, Garston, are to be modernised at an estimated cost of £425,000. The scheme will be carried out at the east end south east berths of this dock and will include the realignment of railway lines on the quays, with additional lines and concreting of quay surface for the effective use of mechanical appliances; improved rail connections between the quays and the marshalling sidings; and twelve electric level luffing quayside cranes of 65 ft. radius, four with a lifting capacity of 7½ tons adaptable for grab working, and eight of 3/6 tons. The existing 13 ft. 4½ in. crane track is to be widened to 15 ft. and the lighting of the quays is to be improved for night work.



The late Mr. H. Stroud

Conductor in charge of the "Golden Arrow" Pullman train since 1946

B.T.C. Passenger Charges Scheme, 1954

Transport Tribunal hears resumed evidence

The Transport Tribunal resumed on July 5 the hearing of the British Transport Commission application to raise fares in the London area. The hearing was suspended on June 4, and subsequently the Tribunal, in an interim decision, asked the Commission to put forward suggestions to reduce the revenue expected from the scheme by £700,000. The B.T.C. suggestions were summarised in our issue of July 2.

When the hearing was resumed, Mr. Harold Willis, Q.C., for the Commission, dealt with the further request of the Tribunal that the introduction of a 3d. fare should be considered. He said that the 3d. fare could not be confined to 3d. for three stages. There would be consequential alterations at every other stage.

Fare Collection Difficulties

The task of London conductors must appear sometimes even to the ordinary passenger almost hopeless. It would possibly be a disastrous step to make that task more difficult. If a conductor on one of the central road services of London Transport failed, on an average, to collect one minimum fare on each trip—from one end of his journey to the other—the loss through the year to London Transport would be £342,000. If there were single stage charges, the loss might well run to £1,000,000. The Commission held the view that if these provisions were introduced for buses, they must also be introduced for London Transport railways. It considered the proposal impracticable.

Mr. Willis then called Mr. A. B. B. Valentine, a Member of the London Transport Executive, who agreed that the introduction of a 3d. fare for the three stages would inevitably have certain consequences higher up the scale. Further questioned by Mr. Willis, Mr. Valentine said that the honest person would have to pay still more on fares for the dishonest ones.

Mr. Valentine was cross-examined on fare stages by Mr. Geoffrey Laurence, Q.C., appearing for the London County Council, which is objecting to the scheme. Mr. Valentine agreed that any fare structure "must leave the door open" to the dishonesty of the ill-intentioned passenger. He had no firm figure as to the amount of uncollected fares.

On the following day Mr. Valentine answered further questions put by Mr. Willis. He said that, with the minimum changes necessary to avoid anomalies, the assumed income from ordinary traffic of both road and rail services if a 3d. fare was introduced would be £1,216,843, against the estimated yield of the scheme as submitted of £2,726,282—a decrease of £1,509,439. With an estimated loss in income from early morning journeys of £318,027, the total reduction in revenue if the 3d. fare was introduced would be £1,827,466.

L.C.C. Proposals

Mr. H. Karslake, valuation department, London County Council, explained a scheme proposed by the L.C.C. which was directed towards producing a revenue for the London Transport Executive of the order of £3,600,000 and, at the same time, giving a simple, logical, fares structure not open to the grave objections to which the Commission's scheme was liable. The

scale proposed was built on a 2d. minimum for journeys up to one mile with 1d. increases for additional half-mile fare stages. Re-introduction of a 3d. fare for journeys between one mile and one mile and a half should, in the council's view, recover the traffic lost by the raising of the 3d. fare to 3½d. in 1953.

The council's scheme would produce a net yield on all travel at ordinary fares, including return journeys by early morning travellers, of some £2,846,216. Early

morning tickets charged on the council's scheme would, it was submitted, yield £935,402 net. This made a total of £3,781,618, which was slightly more than the objective, and would make any increase in season ticket charges in London unnecessary.

The council also submitted that the new proposals of the Commission to increase season ticket rates by more than two shillings for a monthly season should not be entertained by the Tribunal. These proposals seriously affected residents in local authority areas who were not represented in the inquiry.

The Tribunal was to sit again on the following day.

New Engineering Centre at Birmingham

*Provision of technical information,
and display of engineering products*

The Birmingham Exchange, which was opened in 1861, has been rebuilt at a cost of £30,000 to form a centre for the display of light engineering products and the discussion of technical subjects in connection with the engineering industry. The centre, which was opened on June 17, and is believed to be the first of its type in this country, will be run as a non-profit-making, distributing organisation.

Home and overseas buyers will be encouraged to visit the centre, and special emphasis will be given to the exporting of engineering products by firms of moderate size, specially those who do not normally enter this field of activity. Lord Bennett, Joint Managing Director, Joseph Lucas Industries Limited, speaking at the luncheon at the opening, referred to the work of the British Productivity Council, and said that the sellers market had disappeared, and we now had to deal with a buyers market. Foreign competition, particularly from Germany, was intense, and it was necessary to be up-to-date in ideas to enable this country to obtain its share of the world's trade.

Referring to the British Industries Fair, and annual exhibitions which were devoted to the display of machinery and so on, these had their values, said Lord Bennett, but because of the efforts Continental countries were making in promoting trade fairs and exhibitions, these were not enough and it was necessary for manufacturers to display their products continuously to potential customers. The new project would provide an excellent centre for the discussion of both technical and non-technical subjects connected with the engineering industry.

The President of the Birmingham Exchange, Mr. Christopher Grazebrook, in referring to the past history of the Birmingham Exchange, said that many firms in the locality engaged on basic industries were early members, and the Exchange provided the opportunity for manufacturers and buyers to meet as regular intervals. With regard to its future, the engineering industry had already taken a considerable interest in the new project and their activities, so much so that the entire exhibition space has been taken up.

Assisting Young Technicians

He placed special emphasis on the assistance that the new project would give to the younger technicians in the engineering industry, as it provided not only a show

case of the best that industry could produce, but also a collection of engineering information probably unique in this country. It was their policy to assist the export trade, and it was to commerce that we had to look to find a bond of union between different countries, and they would welcome foreign buyers.

In conveying the good wishes of the Board of Trade and Ministry of Supply, Mr. Barry Kay, Regional Controller, Board of Trade, said the increased prosperity of this country and the raising of living standards all over the world depended to a great extent on the engineering industry. In regard to our export trade, 40 per cent of this country's exports are in the engineering categories, compared with 26 per cent in 1938. The need for co-operative measures to raise productivity and improve our technical efficiency was of vital importance.

SOUTH WALES TRANSPORT CO. LTD.—At the annual general meeting of the South Wales Transport Co. Ltd. Mr. J. S. Wills, deputising for the Chairman, Mr. W. T. James, presided. He said that in 1953 the company's buses operated 14,000,000 miles, an increase of 500,000 miles. Approximately half this increase derived from the fact that in 1953 the company had a full year's operation of the former Llanelli Traction undertaking. Increased fares were introduced on March 29, 1953, the result of an application to the licensing authority which had been rendered necessary by the additional fuel tax of 7½d. imposed in the Budget of 1952 and a national wage increase in the autumn of that year. The extra revenue from the fares increase is no more than is required as a minimum to meet the increased costs which fell on the company in 1952, and to secure a modest return on capital. The subsidiary company, the Swansea Improvements & Tramways Company, was dissolved during the year, ending an association existing for nearly 50 years between the Company and the borough of Swansea. The Mumbles Railway, the first passenger railway in the world, taken over by the Company from its subsidiary in 1927, celebrated the 150th anniversary of its incorporation on June 29 this year. They were proud, said Mr. Wills, to operate a railway which had kept its original identity long enough to celebrate such a remarkable birthday.

Conington North Signalbox Re-sited

To enable the gates at the nearby level crossing to be worked mechanically from the box instead of by hand, Conington North Signalbox, just south of Holme Station on the East Coast main line of the Eastern Region, has been moved from its former site about 75 yd. south of the crossing to a new site immediately next to the crossing.

A bed of old sleepers was prepared along the running path between the two sites and a roller path consisting of 12 in. \times 12 in. timbers was laid down; on top were fixed the race rails, which were bullhead rails laid on their sides. The preparation of the box for rolling involved internal and external strutting which was done with timber and steel tie rods. To raise the box to the level of the roller path, it was necessary to fix 9 in. \times 7 in. rolled steel joists through the walls from side to side. These were in turn suspended from four 24 in. \times 7½ in. rolled steel joists running the length of the box, two inside and two outside, supporting each main wall. Other girders, also fixed to the larger joists, supported the end walls and concrete staircase which was carried along with the box.

The structure was then lifted off its damp course to the level of the runway by four 200-ton jacks applied to the 24 in. \times 7½ in. joists, one jack at each corner of the box. The box was raised to a height of 21 in. above its damp course preparatory to fixing the race rails and steel balls.

The lower race rails were continuous throughout the length of the roller path including the length of the box. Four upper race rails were provided, each about 7 ft. 6 in. long, at each corner of the box, supported on 3½ in. dia. steel balls placed approximately 6 in. apart, and these were continuously fed into the race rails as the movement took place.

The subsequent operations involved the lowering on to the temporary brick piers which took the weight until the lower portions of the walls were restored, after which all strutting and steel supports were removed. During the operation only a minimum of stripping of the signalling equipment was necessary; it was confined almost to the removal of the signal rodding in the lower chamber of the box.

The operation was carried out without damage apart from the breaking of one pane of glass.

The box was out of action for three weeks but the movement was completed in about four hours. Whilst the work, which was undertaken by Wellerman Bros., Sheffield, was going on, block working was carried out between Conington South and Holme boxes.

Steam Locomotive Production in Hungary

For many years the Royal Hungarian State Works in Budapest, founded in 1840 and building its first locomotive in 1873, held a monopoly of locomotive building in the country, recently challenged by the Diósgyör steelworks near Miskolc where a few locomotives were built early in the war and which is now reported to have begun quantity production. The State works in Budapest, heavily damaged during the fighting in the city, have been restored under the name of Mávag and since 1946 appear to have had a greater annual output than at any other period in their history.

The first locomotives built for the State Railways after the war were eight mixed-traffic 4-8-0s, with 23½ in. by 26 in. cylinders, 5 ft. 3 in. driving wheels and a maximum axleload of 15 tons. The first locomotives of this class were built as long ago as 1924 and proved so useful that 210 more were built during the war, as well as some 20 for the then Slovak State Railways. More of the class have been built for the Hungarian State Railways recently and in the later batches many constructional details have been brought up to date, notably the boiler which is welded throughout except for the double-riveted joints of the three boiler barrel segments. The steel firebox is stayed by unscrewed stays welded in position, including the flexible stays provided. This boiler is to be used in new 2-10-0 and 4-8-4 tank designs which are to be built for the State Railways.

Last year Mávag built the first of a new class of express locomotive for the State Railways. They are 4-6-4s with 6 ft. 6½ in. driving wheels and are fitted with a mechanical stoker. One was illustrated in our April 30 issue. Other loco-

motives built for the State Railways in the last few years include light 2-6-2 tanks for branch-line working.

Exports

Since the war most post-war production has been for export. The Mávag works are reported to have built over 1,000 locomotives with the 0-10-0 wheel arrangement for the Soviet Union, as well as many narrow-gauge engines. The 0-10-0s have an all-welded boiler and before being despatched were steamed and given trials on special 5-ft. gauge tracks in Budapest. These substantial orders occupied the works until eighteen months ago but now capacity is available for other customers and at least two important orders have been completed. A batch of 4-8-0s, exactly similar to the Hungarian State Railways previously mentioned, have been supplied to North Korea and 2-8-0s have been supplied to Egypt. The 2-8-0s were to Egyptian Republic Railways designs, based on the L.M.S.R. design which is running in Egypt. As in the originals the cylinders are 18½ in. by 28 in. and the driving wheels 4 ft. 8½ in. in diameter. Manganese steel liners are fitted to both the axlebox and horn block faces, an innovation in Hungarian practice. The boiler is of the Belpaire type with a parallel barrel and an all-welded steel inner firebox fitted with a Nicholson thermic siphon and arranged for oil-firing.

BRITISH MEMORIAL FELLOWSHIPS FOR 1954-55.—The Victorian Agent-General in London, Sir John Lienhop, has given details of a further four British Memorial Fellowships to be made available during 1955 to British nationals with at least ten years' residence in the United Kingdom. Each Fellowship is for £A1,000. The tenure would normally be for the academic year commencing March, 1955, and candidates should be prepared to travel to Victoria during January. Accommodation will be arranged for selected candidates. The Fellowships are for nursing, journalism and two in university subjects, where the applicants may nominate the field of study or research in which they wish to work. Full particulars of the condition of award and each Fellowship may be obtained from Sir John Lienhop, Victoria House, Melbourne Place, Strand, W.C.2.



(Left) view looking north showing Conington North box after removal to its new site from its original position (in front of van); (right) the box partly resting on the temporary runway before being lowered



Mechanisation of Swindon Goods Depot

*Installation of moving slat conveyor
to avoid intermediate handling*

Considerable progress has been made by the Western Region in the introduction of mechanical aids of various types to afford greater efficiency and eliminate unproductive effort. In pursuance of this policy Swindon goods shed has been adapted to incorporate a moving slat conveyor between wagons being discharged and road vehicles along the cartage front, enabling a received package to be conveyed from rail to road vehicle without intermediate handling.

The conveyor is 273 ft. long and is powered by a 25 h.p. three-phase slip ring induction motor, with two stages of rotor resistance starting, controlled through a contactor panel by "start" and "stop" push buttons. There are also four emergency stop buttons situated throughout the length of the platform alongside the conveyor to enable the conveyor to be stopped but not re-started. The conveyor is protected from damage caused by jamming, and so on, by a shear pin device which breaks in the event of an excessive overload, thus disconnecting the drive from the conveyor.

Forwarded traffic, hitherto handled in the open yard, is now handled under cover. This has been made possible by the large area made available by the introduction of a platform only 11 ft. wide (which includes the 3 ft. wide slat conveyor) compared with two wide platforms and adjoining running lines.

Received Traffic Handling

The method of working for received traffic, amounting to about 100 tons per day, is that three wagons are discharged simultaneously to the conveyor, packages being placed thereon label uppermost. The packages are carried by the conveyor, moving at 40 ft. per minute, along the cartage front, removed at the appropriate berth, placed direct to cartage vehicles and simultaneously checked, each cartage berth having five or six vehicles. Succeeding groups of three wagons are drawn by capstan and dealt with similarly until the day's wagon arrivals have been completed. The capstan is of fixed head type powered by a 15 h.p. electric motor with

star-delta automatic starting. It exerts a 3-ton pull and can haul a total wagon load of 224 tons on a straight and level track.

Depot Equipment

Articulated road equipment is used, enabling trailers that are fully loaded before the return of the mechanical horse to be drawn away and replaced by empties, thus affording continuity of work. Heavy lifts exceeding 4 cwt. which are generally beyond the capacity of the conveyor, are dealt with by a fork lift truck with specially designed crane attachment picked up by the forks. This operation is undertaken at the far end of the shed from wagons which have already been discharged of other miscellaneous traffic.

Forwarded traffic is loaded to the appropriate wagons direct from road vehicles, which pass over the weighbridge before perambulating around the two covered sidings and depositing packages direct to wagons. Checking is carried out simultaneously.

Similar layouts at Gloucester and Cheltenham will be introduced shortly and schemes of this nature are being planned for other stations in the Western Region.

Questions in Parliament

Railway Charges Scheme

The Minister of Transport & Civil Aviation was asked on June 30 by Mr. John MacLeod (Ross and Cromarty—Nat. Lib. C.) the present time limit fixed by him under Section 76 of the Transport Act, 1947, for the submission of a railway charges scheme by the British Transport Commission to the Transport Tribunal.

Mr. Alan Lennox-Boyd replied that the date was August 6, 1955. Mr. MacLeod said the Minister's reply was rather unexpected and very welcome. The question of freight charges and charges generally was becoming impossible.

Mr. Ernest Davies (Enfield East—Lab.) asked whether a charges scheme would have been introduced earlier if the Com-

mission had not been interfered with by the 1953 Act.

Mr. Alan Lennox-Boyd said he was certain that the charges scheme, because of the 1953 Act, will give more local autonomy than otherwise would have been possible. The Commission had assured him that it hoped to produce a railway freight charges scheme very early, and well before the date given in his answer.

Transport Commission Report

Mr. Ernest Davies (Enfield East—Lab.) on June 30 inquired when the Minister of Transport & Civil Aviation expected to receive the Report of the British Transport Commission for 1953; and when it would be available to Members.

Mr. Alan Lennox-Boyd in a written reply stated: The B.T.C. inform me that owing to the preoccupation of their small headquarters staff with important matters arising out of the Transport Act, 1953, including preparation of the railways reorganisation scheme, the completion of their Report for 1953 has been delayed. It is, however, hoped to send the Report to the printers next month.

Electrification of London-Tilbury Line

Mr. John Parker (Dagenham—Lab.) on June 30 asked what progress had been made with the electrification of the London and Tilbury Line.

Mr. Alan Lennox-Boyd (Minister of Transport & Civil Aviation) replied: The British Transport Commission tell me that the technical planning for this electrification scheme is well in hand. The plans for the engineering works at Barking, which include a new flyover and complete reconstruction of the station, are nearly complete. These and other preliminary engineering works, some of which have been started, must precede the electrification itself and will take some years to complete.

Scottish Railway Undertaking

Asked by Mr. J. Innes (Glasgow Central—Lab.) if he was yet in a position to approve the scheme for the reorganisation and for the appointment of an authority for the railway undertaking in Scotland, which was submitted to him on April 15, 1954, by the British Transport Commission, Mr. Alan Lennox-Boyd (Minister of Transport & Civil Aviation) wrote in reply on July 1: "No."



(Left) Swindon Goods Depot before adaptation; (right) after installation of slat conveyor for handling received traffic



Sale of Road Haulage Assets

Mr. J. A. Sparks (Acton—Lab.) on June 30 inquired how many vehicles of all types had so far been sold by the Road Haulage Disposal Board; what was the total proceeds of such sales; and how many vehicles of all types remained to be disposed of.

Mr. Ernest Davies (Enfield East—Lab.) also asked the Minister of Transport & Civil Aviation the total number of vehicles so far disposed of by the Road Haulage Disposal Board; the number that remained to be sold in accordance with the Transport Act, 1953; and the percentages those disposals represented, as regards vehicles, with and without premises, of the total numbers offered, respectively.

Mr. Alan Lennox-Boyd (Minister of Transport & Civil Aviation) stated in reply: Of the 13,166 vehicles offered in the first seven lists, 5,947 have so far been sold, or 18 per cent of those with premises and 73 per cent of those offered without premises. A few cases are still to be decided. I am informed by the British Transport Commission that the purchase prices of the transport units so far sold total about £7,400,000; this includes the sums paid for rights obtained by purchasers and for property included in units other than vehicles. About 26,500 vehicles are still to be sold.

Level Crossing Gates

Mr. F. J. Erroll (Altringham and Sale—C.) on July 1 asked whether the Secretary of State for the Home Department would circularise the authorities concerned, drawing their attention to the necessity for local liaison between signal-boxes controlling level crossings and individual fire stations, so as to prevent level crossing gates being closed against a fire engine when answering a call.

Sir David Maxwell Fyfe replied that he did not think a circular was needed. He was advised that the local fire authorities made whatever arrangements were practicable.

Staff & Labour Matters**Railway Wages Structure**

Talks between representatives of the British Transport Commission and the three railway trade unions on the wages structure for British Railways salaried and conciliation staff have taken place since we last reported on this question and further talks are to be held.

Addressing delegates at Gourock on the eve of the annual conference of the N.U.R., the General Secretary said that negotiations had reached a delicate stage and the N.U.R. might have to reject the Commission's proposals out of hand. He left the conference on July 5 to represent his union at further talks with the British Transport Commission's representatives on the wages structure.

N.U.R. Annual Conference

In his presidential address to the annual conference of the N.U.R. on July 5, Mr. J. W. Stafford told delegates that the Union would do all that it could to improve the efficiency of British Railways. He denied that the Union was concerned only in securing higher wages for its members. Mr. Stafford said, "We realise that an expanding industry is in the interests not only of those employed in it but of the community at large. Our interest is not merely confined to driving a

bargain for wage improvements. We are anxious that our nationalised system of transport, somewhat mutilated though it may be, shall set a pattern to the world."

In private session the conference agreed to raise the age limit at which officials of the Union are called on to retire. At the present time the age limit is sixty.

Contracts & Tenders

Fried. Krupp Lokomotivfabrik, A.G., is building six 4-8-2 + 2-8-4 Garratt steam locomotives for the metre-gauge Luanda Railway in Portuguese West Africa.

Fried. Krupp Lokomotivfabrik A.G. is building for the Rheinische Braunkohlen A.G. 20 electric locomotives of 2,000 h.p., 30 tons maximum axle load, and Bo-Bo wheel arrangement, and all of the converter type; and one locomotive of similar proportions but of the rectifier type. These are for 6,000 volts single-phase, and the electrical equipment is by A.E.G.

British Railways, Eastern Region, have placed the undermentioned contracts:

A. J. Binns Limited, London, N.1: part supply and complete erection of lineside fencing in the Ipswich district

Kirk & Kirk Limited, S.W.15: construction of new main station building, platform buildings and shelters, finishings to subway and ramps, railings to ramps and external works at Potters Bar Station

George A. Kenney & Sons Ltd., Ipswich: alterations to goods shed at Colchester St. Botolphs

British Railways, Western Region, have placed the following contracts:

Musgrave & Co. Ltd., London, W.C.2: Supply and erection of a grit and dust separator and collecting equipment at Stafford Road Works, Wolverhampton

British Insulated Callender's Construction Co. Ltd., London W.C.2: painting signalboxes, signals, etc., and other work in the Par District

The Fairfield Shipbuilding & Engineering Co. Ltd., Chepstow: supply of steelwork and concrete deck units for the reconstruction of the bridge under the line at Swindon; supply of steelwork and pre-cast post-tensioned concrete deck units for the reconstruction of the bridges under the line near Patchway Station and near Windsor Station

D. Wickman & Co. Ltd., Ware: supply of twenty-two motor gang trolleys

Adlon Erectors Limited, London, S.W.15: carrying out repairs to the roof of the Carriage Shed, Old Oak Common Depot

British Railways, North Eastern Region, have placed the following orders:

C. H. Johnson (Machinery) Limited, Stockport: one static mounted loaded and special diesel dumper, York

Wm. Latimer & Co. Ltd., Newcastle-on-Tyne: cleaning and painting station buildings, etc., on the Leeds and Newcastle branch between Pelaw and Gateshead

E. Davis (Fixers) Limited, York: erection of new roof to forge and press shop at Shildon Wagon Works

The High Commissioner for India is inviting tenders for locomotive plate frames. Details appear in Official Notices on page 55.

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the India Supply Mission is calling for tenders for diesel powered loco-

motives for use at Chambal Hydel Dam site as follows:

Seven diesel powered locomotives for 2 ft. gauge track. The locomotives shall be capable of hauling a gross load of 50 long tons up a grade of 1 in 200 at a speed of not less than seven m.p.h. They shall be furnished complete with cab, generator, battery and lights for night operation. They must be equipped with an extra capacity tropical radiator which will provide sufficient cooling capacity for continuous full load operation with an air temperature of 115 degrees F.

The locomotives will be used for transporting stone, sand mortar and concrete in 2 ft. gauge tipping wagons (side dump) for the construction of a stone masonry dam.

The closing date for the receipt of tenders is July 26. A copy of the tender documents including specifications and conditions of contract, may be obtained on loan on application to the Branch (Lacon House, Theobalds Road, W.C.1).

The Special Register Information Service, Export Services Branch, Board of Trade, reports that the South Australian Railways, Mechanical Branch, are calling for tenders for:

Six diesel-electric locomotives on rail in working order at the main workshops of the South Australian Railways at Islington, South Australia, or alternatively, diesel-electric-locomotive equipments for installation in frames built by the South Australian Railways

Each diesel-electric locomotive shall be powered with a compression ignition engine of not less than 1,600 h.p. and the maximum continuous output from the main generator coupled to this engine shall not be less than 1,100 kW. The total weight of the locomotive on the rails in working order shall be approximately 120 tons (268,800 lb.) and the maximum axle load shall not exceed 20 tons (44,800 lb.).

The locomotive shall be designed and constructed for operation on 5 ft. 3 in. track gauge, but the design and construction shall be such that the conversion to 4 ft. 8½ in. gauge may be readily effected by reversal of the wheel centre.

The closing date for the receipt of tenders is August 10. Tenders should be addressed to the Secretary, South Australian Railways Commission, Adelaide, South Australia, from whom copies of the Specification may be obtained on application.

A copy of the tender documents including specifications, drawings and conditions of contract, may be inspected in Room 801 at the Branch (Lacon House, Theobalds Road, W.C.1) until July 12 after which date it will be available for loan to United Kingdom firms in order of application.

HEAD, WRIGHTSON & CO. LTD.—The chairman of Head, Wrightson & Co. Ltd. reports that in the year ended January 31, 1954, records were achieved in many directions, including turnover, profits, gross work in progress, orders, and value of contracts to complete. The last three items may indicate the short-term future. Fixed assets at the year end were £1,109,757, compared with £978,282 a year earlier. Investments totalled £233,734 (£233,958), and current assets £3,133,544 (£3,167,438). Of the latter, work in progress accounted for £1,105,740 net (£1,427,564), debtors £783,349 (£877,184), tax reserve certificates £176,700 (nil), and cash £578,276 (£280,008). Current liabilities totalled £1,128,710 (£1,395,202).

Notes and News

Diesel Electric Locomotive Engineer Required.—A diesel-electric locomotive engineer is required for putting manufacturers' products into service overseas. See Official Notices on page 55.

Workshop Foreman (Millwright) Required.—A workshop foreman (millwright) is required by the Nigerian Railway for one tour of 18 to 24 months in the first instance. See Official Notices on page 55.

Vacancies for Mechanical Instructors.—Applications are invited for posts of mechanical instructors required by the Nigerian Railway for one tour of 12 to 24 months in the first instance. See Official Notices on page 55.

Vacancy for an Executive Assistant.—London Transport require an executive assistant for the design of mechanical handling equipment for railway permanent way maintenance renewal and construction works. See Official Notices on page 55.

Resident Engineer Required.—Applications are invited for the post of resident engineer, capital works, required by the Nigerian Railway, to supervise the construction of major capital works such as large passenger stations, goods depots, and locomotive sheds. See Official Notices on page 55.

Working of the "Elizabethan".—The "Elizabethan" trains, which began their second season on the non-stop working between Kings Cross and Edinburgh on June 28, put up impressive performances in the first week of operation of the new accelerated 6½ hr. schedule. Before time arrivals were logged in both directions every day, as, for example, 6 min. and 7 min. on June 29 and 30 respectively, in the up direction, and 3 min. on both June 28 and 29 in the down direction. The fastest run, in the up direction on June 30, when an arrival 7 min. early was recorded, gave an average speed of 61.5 m.p.h. for

the 392½-mile non-stop journey. The only incident of consequence was when the down train was brought to a stand north of Doncaster on June 30 by adverse signals; including other checks Durham was passed 13 min. behind schedule but the enginemen not only recovered this time but arrived at Edinburgh 2 min. early.

Possible German Rail Order for Brazil.—The Brazil-German Joint Commission on Economic Development has recommended the purchase of £2,857,143 worth of rails from Germany for the re-equipment of Brazilian railways.

Emergency Stop of "Aberdonian".—Prompt action by a relief signalman brought the northbound "Aberdonian" to an emergency stop south of Arlesey (Beds) on July 3 after all four roads had been strewn with wreckage from a derailed goods train.

Lancashire & Yorkshire Wagon & Engineering Co. Ltd.—The Standard Railway Wagon Co. Ltd., of Reddish, Stockport, has entered into an agreement to purchase the share capital of the Lancashire & Yorkshire Wagon & Engineering Co. Ltd., of Heywood, Lancs.

Accident to French Diesel Train.—Thirty-five passengers were killed and 30 injured on July 3 when a Lyons-Nîmes four-coach diesel train ran into a goods train five miles north of Valence on the Lyons-Marseilles main line. The accident was thought to have been caused by a signalling error. Single-track working had been in force on the section earlier in the day during permanent way repairs.

Improved Western Region Train Service.—British Railways (Western Region) have announced that the 9.5 a.m. train from Birkenhead to Cardiff will convey through coaches for Plymouth, giving arrival times at Bristol (Temple Meads) 2.27 p.m., Exeter (St. Davids) 4.14 p.m., Dawlish 4.40 p.m., Teignmouth 4.48 p.m., Newton Abbot 4.58 p.m., Totnes 5.30 p.m., Brent 5.51 p.m. and

Plymouth (North Road) 6.30 p.m. Passengers for the Torquay line change at Newton Abbot and depart 5.3 p.m., arriving Torquay 5.22 p.m. and Paignton 5.30 p.m. The new arrangements will apply each Saturday during the remainder of the summer train service.

Vent-Axia Limited Assets.—Group current assets of Vent-Axia Limited for the year ended March 31 last totalled £307,968. Current liabilities and provisions were £89,696. Net assets were £245,750. The meeting is to be held in London on July 20.

Antofagasta (Chili) & Bolivia Railway Co. Ltd. Receipts.—Traffic receipts of the Antofagasta (Chili) & Bolivia Railway Co. Ltd. for the week ended June 18 were £96,284, a decrease of £10,200 compared with the corresponding week of last year. Aggregate receipts from January 1 to that date amounted to £1,844,354, a decrease of £529,200 on the 1953 figures.

National Union of Railwaymen.—Assets of the National Union of Railwaymen totalled £5,023,253 at the end of 1953, compared with £4,799,131 the previous year. The market value of the Union's stocks was maintained, only one stock depreciating, and that by the small sum of £31. Membership totalled 378,309, compared with 397,141 at the end of 1952, but more than 7,000 of the decline of 18,832 was attributable to transfers to the National Association of Transport Employees (Ireland).

Day Excursions to France.—The Southern Region is to introduce day excursions to Dieppe via Newhaven on July 19. These excursions, which have not run since the war, will give passengers either ten hours or a complete day ashore, which ever is preferred. The fare from Victoria will be 64s. 6d. (children 38s. 3d.). For the shorter trip, passengers will leave Victoria at 9.30 a.m., arriving at Dieppe at 2.45 p.m. The return journey begins at 1.30 a.m., but passengers may join the ship before this if they desire. Victoria is reached at 7.21 a.m. On the full day excursion Victoria is left at 8.20 p.m., and Dieppe reached at 2.10 a.m. Passengers may remain on board until 8 a.m. The return journey times are as for the shorter trips. The excursions will be available every Monday, Tuesday, Wednesday, and Thursday from July 19 until August 26. Bookings will be available also from certain South coast resorts at appropriate fares. Passports are essential.

Guest, Keen & Nettlefolds Limited.—The annual meeting of Guest, Keen & Nettlefolds Limited was held in Birmingham on June 24. In his circulated statement, the Chairman & Managing Director, Mr. K. S. Peacock, said that the return to the firm's ownership of the iron and steel works previously connected with the group was considered on denationalisation, and an offer had now been accepted by the Iron and Steel Holding and Realisation Agency for the South Wales undertakings carried on by Guest, Keen, Baldwins Iron & Steel Co. Ltd., and Guest, Keen & Nettlefolds (South Wales), Limited. One of the terms of the agreement was the execution of a trading agreement whereby the normal steel requirements of the group from John Lysaght's Scunthorpe Works Limited have been secured for a period of years. The investment allowances in the current Budget would give relief to



The "Elizabethan," hauled by locomotive No. 60030 "Golden Fleece," leaving Kings Cross on June 28 on its first run this year

OFFICIAL NOTICES

The engagement of persons answering Situations Vacant advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

DIESEL-ELECTRIC LOCOMOTIVE ENGINEER required for putting manufacturers' products into service overseas. Knowledge of all aspects of diesel-electric locomotive work essential. Good service conditions and salary. Please write with full details of training, experience, age, etc., to Box 279, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

LONDON TRANSPORT require Executive Assistant for design of mechanical handling equipment for railway permanent way maintenance renewal and construction works. Applicants must have sound experience of mechanical and electrical design and drawing office experience. Qualifications: Higher National Certificate, member or qualifying for membership of professional institution. Salary range £815 to £865, prospects of advancement to £940. Medical exam.; contributory superannuation scheme after probation. Applications to Staff Officer (F/EV 293), London Transport, 55, Broadway, S.W.1. For acknowledgement enclose addressed envelope.

THE HIGH COMMISSIONER FOR INDIA invites tenders for the supply of:—12 SETS (12 R.H.) (12 L.H.) Frame Plates for "K" Class Engines, machined and finished with all cuttings and openings, with strip left at bottom of horn block openings, to S.R. Sketch No. 1676/B.G. (ICD. 5375). Forms of tender may be obtained from the Director General, India Store Department, 32/44, Edgware Road, London, W.2, on or after July 9, 1954, at a fee of 10s. which is not returnable. If payment is made by cheque, it should please be made payable to "High Commissioner for India." Tenders are to be delivered by 2 p.m. on Friday August 6, 1954. Please quote reference No. 56/54/DH/RLY.3.

schemes carried out in the United Kingdom and were welcomed. It was not easy to be optimistic about improved results in current conditions. Any general movement raising the costs of production must have a serious effect on the ability of this country to compete in world markets. The group now consisted of some 70 companies operating at home and overseas. The report and accounts were adopted.

Ribble Motor Services Limited.—The annual meeting of Ribble Motor Services Limited was held at Preston on July 1. In his speech, Mr. R. P. Beddow, the Chairman, said that the continued leapfrogging of wage claims throughout the country was a serious embarrassment to leaders of all industries, and particularly in road passenger transport, where there is a serious lapse of time between the payment of higher wages and the date when higher fares became operative. A new project of interest was the purchase and adaptation of the former railway station premises in Lord Street, Southport, which is now in use as a bus and coach station.

Road Haulage Unit Sales.—The Road Haulage Disposal Board and the British Transport Commission announce that on June 29 the position with regard to sales of units in List 5 was that, of 13 units with premises, the highest tender had been accepted for one unit (four vehicles), all tenders for five units (173 vehicles) had been rejected, no decision had been reached on two units (51 vehicles) and no bids had been received for five units (83 vehicles). Of general units without premises, the highest tender had been accepted for 462 (1,158 vehicles), all tenders had been rejected for 88 (303 vehicles), two were under consideration (seven vehicles), and no bids had been received for 44 units (187 vehicles). There were also 37 contract hire units, for 21 of which the highest tender had been accepted (42 vehicles). Of

WORKSHOP FOREMAN (MILLWRIGHT) required by the NIGERIAN RAILWAY for one tour of 18/24 months in the first instance. Salary scale (including expatriation pay) (a) £750 rising to £1,035 a year, with prospect of pensionable employment or (b) £864 rising to £1,194 a year on temporary terms, with gratuity at rate of £100/£150 a year. Outfit allowance £60. Free passages for Officer, and wife. Assistance towards cost of children's passages or grant up to £150 annually for maintenance in U.K. Liberal leave on full salary. Candidates should have served an apprenticeship as a millwright in a railway locomotive builders or heavy engineering workshop and have had seven years' experience on the maintenance, repair and fitting of machine tool, as well as compressors, electric overhead and steam engines, small generating, pumping and similar plant. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/30391/RA. Applicants now serving with British Railways would be eligible for secondment and should apply through their local officers.

MECHANICAL INSTRUCTORS required by NIGERIAN RAILWAY for one tour of 12/24 months in the first instance. Salary scale (including expatriation pay) £800 rising to £1,115 a year. Gratuity at the rate of £100/£150 a year. Outfit allowances £60. Liberal leave on full salary. Free passage for officer and wife. Assistance towards cost of children's passages or grant up to £150 a year for their maintenance in U.K. Candidates should have served an apprenticeship with Locomotive or Carriage and Wagon Builders and have subsequently served as a journeyman for at least three years. They should be able to give practical demonstrations and to lecture on practical elementary engineering, correct use of hand tools and machine tools processes in one of the following fields:—(a) Turning and machining (b) Sheet metal/Plating and welding (preferably with Boiler shop experience) (c) Carriage Body building and wood machining. Write to the Crown Agents, 4, Millbank, London, S.W.1. State age, name in block letters, full qualifications and experience and quote M2C/30650/RA.

the remainder, all tenders had been rejected in four cases (34 vehicles) and no bids had been received for 12 (37 vehicles).

Train Departure Indicator: Kings Cross.—The accompanying illustration shows a new prototype train indicator, which was installed recently at Kings Cross, adjacent to No. 16 platform. It is an illuminated indicator embodying a "screenoscope projector," which projects, from separate slides, particulars of the time and stopping points of the train on to a screen, which measures 20 in. x 15 in. The machine can



New indicator for suburban services now in use at Kings Cross

HER MAJESTY'S COLONIAL SERVICE. Applications are invited for the following post:—**RESIDENT ENGINEER CAPITAL WORKS, NIGERIAN RAILWAY.** Duties: Supervision of construction of major capital works such as large passenger stations, goods depots and locomotive sheds, built either by direct labour or by contract. Appointment on contract/gratuity terms. Gross salary £1,970 per annum. Gratuity of £37 10s. for each completed period of three months' service payable on satisfactory completion of contract. £60 outfit allowance. Free first class passages for officer and wife and assistance towards children's passages to Great Britain. Free medical attendance. Quarters provided at reasonable rental. Candidates, who should be at least 35 years of age, must hold a University degree or diploma recognised as granting exemption from or have passed the Final Parts I and II of the A.M.I.C.E. examination. They should have had experience in bridge work and general reinforced concrete construction. Railway experience is desirable but not essential, and preference will be given to those with experience of working with African labour. Full details on application. Apply in writing to the Director of Recruitment, Colonial Office, Great Smith Street, London, S.W.1, giving briefly age, qualifications and experience. Mention the reference number BCD/110/14/013/D15.

QUANTITY SURVEYOR/ESTIMATOR required. Permanent position with accommodation offered to suitably qualified man. Apply to the Eager Construction Co. Ltd., Scunthorpe, Lincs.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

BOUNDED VOLUMES.—We can arrange for readers' copies to be bound in full cloth at a charge of 25s. per volume, post free. Send your copies to the SUBSCRIPTION DEPARTMENT, Tothill Press, Limited, 33, Tothill Street, London, S.W.1.

be operated either automatically or manually by button pressure. The indicator was designed by the Crane Automatic Co. Ltd. and measures approximately 7 ft. 3 in. high, 2 ft. 2 in. wide, and 2 ft. 6 in. from back to front.

Richard Costain Limited.—An ordinary dividend of 10 per cent is proposed by the directors of Richard Costain Limited for 1953, together with a bonus from capital profits of 3 per cent. The dividend is the same as that for 1952, when there was no bonus. Group net profits amounted to £105,094 (£96,543), after taxation of £140,967 (£134,120). The parent company's net profits were £104,886 (£93,035). Preference capital redemption reserve is allocated £9,994 (£9,477). The carried forward figure is £213,024 (£152,325).

Hackbridge & Hewittic Electric Co. Ltd. Results.—The directors of Hackbridge & Hewittic Electric Co. Ltd. have recommended a final ordinary dividend of 20 per cent for the year ended March 31 last. This makes a total of 25 per cent for the year, compared with 20 per cent for the previous year. Consolidated trading profits were £504,225 (£460,853). After provision for auditors' remuneration, directors' emoluments, bank interest, and depreciation requiring £65,023 (£57,308), oversea taxation of £3,436 (£15,887) and U.K. taxation of £268,000 (£233,500), net profits were £167,767 (£154,158), of which the subsidiaries retained £8,324 (£17,353). General reserve is allotted £75,000 (same), leaving £61,139 (£53,146) to be carried forward.

Superheater Co. Ltd. Meeting.—The annual meeting of the Superheater Co. Ltd. was held in London recently. Sir Alexander L. McColl, the Chairman, said in his circulated statement that the year under review had shown considerable increases in turnover and trading. The volume of work on hand was unprecedented, but the flow of orders for the merchant marine showed a definite recess-

sion. Export orders were also falling and refusal to grant import licences and, in some cases, lack of sterling, had brought the firm's business in South America to a standstill. German, Swedish, and Japanese competition had been greatly intensified. To combat this firm prices and definite delivery dates were essential. Technical organisation and plant were being constantly improved and he thought they could look forward to another year of good trading. At a subsequent extraordinary meeting proposals to distribute one ordinary share for every two ordinary shares held and one "A" ordinary share for every two "A" ordinary shares held were approved. This is being effected by capitalising £154,350 transferred from general reserve.

N.E. Region Scenic Excursions.—A summer season programme of 27 scenic excursions to Yorkshire coast resorts is scheduled by the North Eastern Region of British Railways. On Sundays 22 of these trains will run from the West and East Ridings via York, Malton, Pickering, Whitby and Scarborough, and five from Teesside via Battersby, Scarborough, Whitby and Staithes. The trains are made up of tourist stock, and a special feature of each excursion is a two to three hours' stop at both Scarborough and Whitby.

North Central Wagon & Finance Co. Ltd.—At the annual meeting of the North Central Wagon & Finance Co. Ltd. which was held on June 22, the Chairman, Mr. E. Duncan Taylor, said that continued restrictions on the raising of permanent capital and borrowing governed the firm's expansion, and they had to depend mainly on short term deposits and retention of profits to finance increased business. During 1953 merchant banking activities were curtailed by the reduced demand for credit in industry and foreign competition in export markets. Freeing of discount rates had since helped to restore the position.

Hurst, Nelson & Co. Ltd. Results.—The group profit of Hurst, Nelson & Co. Ltd. for the year ended March 31, 1954, after all charges, amounted to £37,752, compared with £40,173 in the previous year. Of this £36,024 is attributable to the holding company. Taxation, already deducted, amounted to £65,890. A dividend of 12½ per cent (15 per cent) is proposed, and the directors also recommend that, from the surplus realised during the year from the sale of part of trade investments, £20,000, the equivalent of 1s. per £1 ordinary stock, not subject to tax, be distributed. A sum of £87,098 (£85,973) is carried forward.

Northern General Transport Co. Ltd.—The annual general meeting of the Northern General Transport Co. Ltd., was held in London on May 14, Mr. W. T. James, Chairman, presiding. The Chairman said that mileage run was approximately the same as last year at 39,000,000 miles. Passengers carried totalled 255,000,000, a decrease of 3,000,000. The drop was partly caused by resistance to increased fares. Northern General is one of the few undertakings in the country still charging 1d. fares. Much has been achieved during the year by way of economies affecting operating costs. Pay increases recently granted will cost approximately £100,000 per annum. Further co-ordination with British Railways for interavailability of return tickets has been extended to South Shields routes, where the bus fares and the "day return" rail fares are the same. Some 7,000 passengers per month take ad-

vantage of these facilities. The number of vehicles owned is approximately 1,000.

Scammell Lorries Limited Meeting.—The annual meeting of Scammell Lorries Limited was held at Watford on June 28. The Chairman, Mr. E. R. Cartwright, said that trading results were satisfactory. Turnover had been greatly increased, but at a reduced profit level. There were indications that very special efforts would be needed to overcome increasing competition in price and delivery in overseas markets. Home sales were well maintained. The Scammell mechanical horse had proved its indispensability in congested areas and for short haul work, while Scammell conversion equipment for articulated vehicles

had been adopted by many four-wheel tractor manufacturers. Further prospects appeared satisfactory. The report and accounts were adopted.

Forthcoming Meetings

July 17 (Sat).—British Railways, Southern Region, Lecture & Debating Society. Afternoon cruise over the Regent's Canal from Paddington to Camden Town.

July 24 (Sat).—Railway Students' Association. Coach tour of East Sussex, leaving Three Bridges Station, British Railways, Southern Region, at 2.15 p.m.

Railway Stock Market

There has been another week of outstanding activity and strength in stock markets with *The Financial Times* index for industrial ordinary shares reaching yet another all-time peak level. More hopeful views of international affairs, the belief that further dividend increases are in prospect next year because results will reflect the end of E.P.L., and the very little selling despite recent big gains, were all factors in the optimism ruling the markets. With buying still increasing, and relatively small selling in evidence, markets are becoming acutely short of stock, so in the circumstances the rise in prices could be accelerated still further. Yields in many directions are small, and those on some industrial shares below that on War Loan. Nevertheless the view that further dividend increases next year are in prospect encourages buyers to overlook small yields at current prices.

It is, of course, impossible to forecast with any degree of certainty how trading conditions will turn over the next twelve months or so, but to date in the current year they have generally been good. Company chairmen in their annual statements, although warning of growing competition both in home and export markets, are mostly cheerful as to the outlook. An important factor in the steady buying in evidence in stock markets is the increasing investments, not only of insurance companies themselves, but of pension and other similar funds of industrial companies and the nationalised industries. Investments of pension and other funds sponsored by the National Coal Board and the Miners' Unions, will eventually reach a total of no less than £250,000,000, it was officially stated this week.

Foreign rails were again quiet in comparison with many other sections of markets, but there was selective buying in evidence. For instance, Dorada Railway ordinary stock revived with a sharp jump to 77½. It is assumed, of course, that should there be a take-over offer, the ordinary stock would be worth substantially more than its current market price, and this hope brings in buyers from time to time. On the other hand, it should be realised that there is no news of any take-over moves. Although this is a possibility, buyers of the stock will be prudent to be prepared to regard it as more of a long-term than a near-term prospect and be willing if necessary to hold for a period.

Canadian Pacifics have strengthened to 54½ as a result of the view that at current levels they offer probably the best means for an investor to take an interest in the Dominion's future. It is recognised, of course that, like all dollar stocks, Canpacs must be expected to move closely with the

trend of Wall Street markets. Canadian Pacific 4 per cent non-cumulative preference stock was £68½ and the 4 per cent debentures £89½. White Pass no par value shares have been easier at £24½. Algoma Central 5 per cent first debentures changed hands around £238.

Antogasta ordinary and preference stocks were 8½ and 41½ xd respectively. Manila Railway "A" and "B" debentures kept steady at 146 and 139, the 1s. ordinary shares at 9s. 1½d. and the preference shares at 19s. 1½d. Elsewhere, United of Havana second income stock has changed hands around 39½ and the consolidated stock was 6. In other directions, Mexican Central "A" debentures were quiet and quoted at 77. Nitrate Rails shares eased to 20s. 3d.

A feature has been the demand for Chilian Northern 5 per cent debentures, which were active up to 30½. Costa Rica first debentures changed hands around 62 and the second debentures at 47½, while Guayaquil & Quito 5 per cent bonds were higher with business at 54½. Taital shares were dealt in around 13s. 3d. San Paulo units were 3s. 6d.

Emu Bay 5 per cent debentures marked 54½ and Midland of Western Australia ordinary stock 21. Nyasaland Railways 3½ per cent debentures were 80 and business in the shares was around 4s. 3d.

Road transport shares were little changed with Southdown 31s. 6d., West Riding 32s. and Lancashire Transport 59s. B.E.T. "A" 5s. deferred units were strong and active around 57s. in view of the exceptionally strong position indicated by the accounts.

Engineering and kindred shares continued active, but price movements were somewhat irregular. Vickers came in for some profit-taking following their recent advance, and were 34s. 7½d. while Babcock & Wilcox eased to 57s. 3d. Guest Keen strengthened to 58s. 4½d. Ruston & Hornsby eased to 47s., but T. W. Ward improved to 49s. 3d. Tube investments at 66s. 10½d. lost part of an earlier advance. Stewarts and Lloyds shares, after opening at a discount of 7½d. attracted investment support, and later established a premium of 3d. If Stewarts and Lloyds keep a premium it will improve the way for the next issue of de-nationalised steel shares. Among shares of locomotive builders and engineers, Beyer Peacock were 39s. 3d. and Charles Roberts 5s. shares strengthened to 10s. 1½d. Birmingham Carriage were 25s. 9d., Hurst Nelson 42s. and North British Locomotive 17s. 3d. Vulcan Foundry were 27s. 6d., Gloucester Wagon 10s. shares 17s. and Wagon Re-pairs 5s. shares 13s. 6d.